

# The Citrus Industry

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## National Association of Nurserymen Enjoy Annual Banquet In Nation's Capital



Seated at the Past President's banquet at the 86th annual convention of the American Association of Nurserymen, held recently in Washington, D. C., was Senator Spessard L. Holland, Bartow. To Sen. Holland's left are Mrs. L. W. Clements, Jr., Bartow; Mrs. Holland; Mr. and Mrs. Leland R. Bryan, Bartow; Mr. and Mrs. Robert Lederer, of the AAN staff in Washington; Mrs. M. W. Kemp, Lake Wales; Ed Brown, Fort Meade; Miss Virginia Kemp, Lake Wales and Washington; Mrs. Ed Brown; and L. W. Clements, Jr., Bartow.

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# Citrus Insect Control For Fall 1961



R. B. Johnson

R. B. Johnson  
W. A. Simanton  
W. L. Thompson



W. A. Simanton

Florida Citrus  
Experiment Station  
Lake Alfred,  
Florida



W. L. Thompson

This article was inadvertently omitted from our August issue but its absence from our August issue does not indicate any change in our policy concerning the offering of this regular feature which we have carried for many years. Our readers can expect the next of the quarterly articles to appear on time.—Editor's note.

Most of the insect and mite pests of citrus decrease to low population levels from mid-August to mid-September due to a complex of natural control factors. A minor portion of groves will not conform to this pattern. If an infestation remains high during this period or starts to increase early in September, it is a warning that trouble will occur earlier in the fall and be greater than usual.

Rust mite will be the problem of greatest concern to most growers. Spotty heavy infestations of red scale will be common and in some groves a new generation of black scale will continue to contribute to sooty mold development. Chaff scale is more prevalent than usual and will increase in September. Purple scale will build to heavy infestation in a few groves where excessive sulfur, especially lime-sulfur, has prevented effective control by parasites. If extended rainy periods occur, the threat from insects and mites will be less but infection by greasy spot, melanose, and brown rot will be accentuated.

## Spray Program

The summer spray is applied in June or July to control scale insects and related pests, to prevent greasy spot on the summer growth and to control citrus rust mite at least until September. If this spray is thoroughly applied, it seldom fails to control scale insects, but rust mite may be-

come a problem in August. In addition, control of greasy spot is likely to be poor where the summer spray was applied before the summer flush. This year some groves will need black scale control in August and it will also be necessary to control purple scale or chaff scale where they are present on packing house fruit. Control of Florida red scale should be considered in August and groves with a history of brown rot may need copper.

If rust mites become numerous in August, a sulfur dust is economical and quick to apply; but a sulfur spray is preferred because it produces a better clean-up and longer control. However, there are disadvantages to sulfur which should be considered before it is used. Although sulfur will control rust mite and *Brevipalpus* mites and may delay any fall increase in Texas citrus mite, it increases populations of purple scale, Florida red scale and citrus red mite. If scale

in August sprays and may be used with copper for greasy spot or brown rot and with parathion for scales.

Parathion or malathion may be applied alone in August where scale insects are the only problem, but it is usually advisable to include zineb or Chlorobenzilate to delay the fall build-up of rust mite. Copper compounds should not be applied without a miticide because copper increases rust mite as well as red spiders.

If the summer spray was properly timed to prevent greasy spot disease and neither mites, scales nor brown rot are an August problem, the next spray should be delayed until needed for fall scale, greasy spot or mite control. The fall spray is primarily to control rust mite, citrus red mite and Texas citrus mite; but scale control may occasionally be needed and some groves will need copper for greasy spot. Its aim should be to control mites until after bloom the following spring unless a dormant application is

SCALE AND MITE ABUNDANCE BY DISTRICTS AT MID-JULY 1961:

District	Rust Mite	Citrus Red Mite	Texas Citrus Mite	Red Scale	Purple Scale
West Coast	2.00*	2.00	1.89*	.64	1.00
Indian River	1.18*	1.43	1.08	1.29*	.79
Upper East Coast	1.17	1.33	1.50	1.50*	.83
Gainesville	1.40*	2.00*	1.60*	.40	.80
Orlando	.89	1.83	1.05	1.08*	1.19*
Brooksville	1.58*	1.58	1.33	.58	1.08
Ridge	1.17	2.00*	2.08*	1.58*	1.68*
Bartow	2.00*	1.71	1.86*	1.33*	1.33
State Average	1.35*	1.76	1.48	1.11*	1.19
Last Year	1.32	1.55	.89	.99	.75

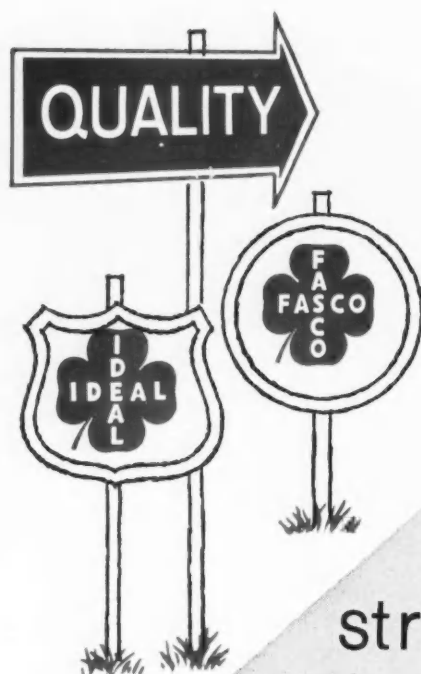
Abundance is computed from the number and intensity of infestations in groves not recently sprayed. Figures marked \* indicate threatening conditions.

populations are at extremely low levels, an increase caused by sulfur may be of little importance; but if scale populations are high or at threatening levels, sulfur should not be used without parathion or malathion unless a scalicide is to be used in the fall spray. Chlorobenzilate at 0.5 pint or pound per 100 gallon or 0.75 pint or 1.5 pounds of Trithion or Ethion are good substitutes for sulfur

planned. With this in mind, it is advisable to delay the fall application as long as possible because the later the spray can be applied, the shorter the interval to postbloom and the greater the chance of obtaining the desired interval of control. This spray should not, however, be delayed until high populations have developed. A good time to apply the fall miticide

(Continued on Page 20)

Written July 20, 1961. Reports of surveys by Harold Holtsberg, Fort Pierce; J. W. Davis, Tavares; K. G. Townsend, Tampa; T. B. Hallam, Avon Park; and L. B. Anderson, Jr., Lake Alfred.

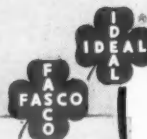


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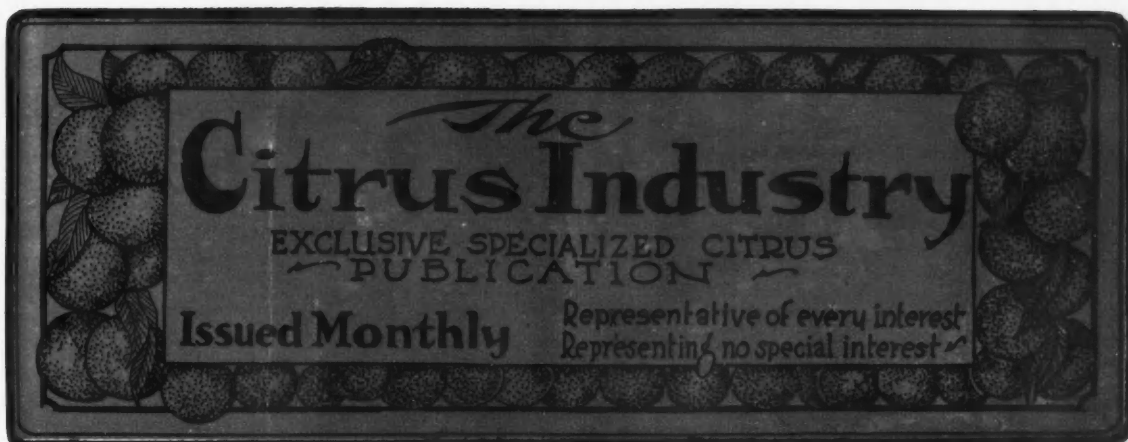
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## Details Of Florida's Citrus Bonding & Licensing Laws

Although the citrus bonding and licensing laws have been in effect for about 25 years, there are many growers who are not familiar with the law and its purposes. The principal purpose of the law is to give growers some protection against unscrupulous dealers. Florida citrus growers are fortunate in this respect because in many states agricultural producers are not afforded such protection.

The law provides that no person shall act as a citrus fruit dealer in Florida without first obtaining a license for each shipping season. In order to obtain a license, an application form must be completed and submitted to the Florida Citrus Commission.

Among other things, the application must show the names of the principal stockholders, officers, partners or other individuals connected with the business; the length of time the applicant has been engaged in the citrus business in any manner; a statement of delinquent accounts, if any; a financial statement; whether the applicant has previously been licensed as a citrus fruit dealer; and the number of boxes of citrus fruit the applicant expects to deal with.

In addition, the applicant must furnish the names of three persons who are citrus growers as references. After a person has been licensed one year, he is not required to supply a financial statement or references in

... BY ...

ROBERT E. EVANS

DIRECTOR OF ADMINISTRATION  
FLORIDA CITRUS COMMISSION

Paper presented at Camp McQuarrie  
August 10, 1961

succeeding years if there are no claims filed against him and if he does not owe any growers for citrus fruit purchased.

After receiving the application, the Commission writes to each of the references to inquire whether they believe the applicant is worthy and deserving of a license as a citrus fruit dealer. If all of the references reply in the affirmative, if the financial statement is satisfactory, and if the necessary surety bond has been posted, the Commission approves the application and sends it to the Commissioner of Agriculture at Winter Haven, where the license is issued.

If the Commission decides that the applicant is not worthy of a license, the application is denied and the applicant is so notified. Under the law, the applicant has 5 days within which to request a hearing in the matter. When hearings are requested, they are granted by the Commission, the applicant appears before the Commission, or a committee designated by the Commission, the case is discussed in detail and a final determination is then made by the Commission.

In the 1960-61 season 1,489 license

applications were approved and 16 denied by the Commission. In the previous season there were approximately 1,500 applications approved. More than one-half of these were express or gift fruit shippers, approximately 400 were truckers or so-called "bird dogs", and the balance were fresh fruit shippers, processors, wholesalers, and brokers.

It is interesting to note that there were 240 dealers who were licensed in the 1959-60 season who did not apply for a license in the 1960-61 season, and there were about 230 new applicants in the 1960-61 season — persons who were not previously licensed. This happens each year — a number of old ones drop out of the picture and some new ones engage in the citrus business.

The law provides that no license may be issued until proper surety bond has been posted with the Commissioner of Agriculture by the applicant. The only exception is express and gift fruit shippers who handle only fruit which is produced on their groves or fruit which they buy from other licensed dealers. In other words, if a gift fruit shipper does not buy any part of his fruit from growers, he is not required to post a surety bond.

The reason for this is that in the past the only liability under the bond has been for the payment of grower claims; therefore, if a gift fruit dealer

does not buy any fruit from growers a bond would serve no useful purpose. These dealers are required to obtain a license.

One duty of the Commission is to check on the sufficiency of the bonds which are posted. The amount of the bond is based upon the total number of boxes of fruit the dealer expects to handle. We frequently find that a dealer will indicate on his license application that he expects to handle a certain number of boxes and he posts the proper bond required for this volume.

However, we later find that he has handled more fruit than he indicated and we immediately notify the Commissioner of Agriculture, who requires the dealer to increase the amount of his bond. In the case of truckers and bird dogs who do not obtain inspection of their fruit, there is no record of the amount they deal with. Therefore, the Commission requires them to file a monthly report showing the amount of fruit dealt with in the previous month.

We keep a running record of the total dealt with and each month check this against the amount of bond posted. If any of them exceed the bond, we notify the Commissioner of Agriculture. During the past season 30 dealers exceeded the amount of fruit covered by their bonds and were required to post additional bond in the aggregate amount of \$170,000.

Out of 853 dealers who were bonded in the 1960-61 season, 413 posted the minimum bond of \$2,000, which covered up to 10,000 boxes of fruit. Most of these were small truckers and gift fruit shippers who bought from growers. A bond of \$10,000 covered up to 100,000 boxes of fruit and 194 dealers posted a \$10,000 bond; 20 dealers posted the maximum bond of \$50,000. The cost for surety bonds in the past has been \$16 per \$1,000, and, incidentally, the annual cost for a license is \$10.

The 1961 Legislature made several important changes in the license and bond law. The minimum bond is still \$2,000, but it covers only 5,000 boxes of fruit instead of 10,000 boxes. The maximum bond is now \$100,000 instead of \$50,000. To give you some idea of the increase in the amount of the bond as provided by the 1961 Legislature, a dealer who handled 500,000 boxes in the past had to post a bond of \$18,000, but in the future it will be \$34,000. The increase varies according to the volume handled, but in general it is from 80% to 100% increase.

In addition to increasing the

amount of the bond, the 1961 Legislature made another change in the law whereby the bond will be good for claims filed by citrus fruit dealers if grower claims do not cover the entire amount of the bond. In the past, as I stated before, the bond was good only for grower claims. Grower claims will still have priority on the bond, and if the bond exceeds the grower claims it will cover dealer claims.

Another change in the law this year is the exemption from surety bond for dealers who deal only with fruit produced on groves which they own or lease. If a dealer handles 100,000 boxes of fruit and all of it is produced on his own groves, he does not have to post a bond. If only 50,000 boxes is produced on his own groves, he is required to post bond for the 50,000 boxes he buys from other growers.

In addition, cooperative marketing associations, organized under the Florida Cooperative laws, who do not market any fruit except for members, are exempt from posting a surety bond. However, if a cooperative markets fruit for anyone other than its members or buys any fruit, it must post a bond to cover this fruit.

I'd like to tell you how growers may take advantage of this important law. You would be very much surprised to know how many growers have not taken advantage of it in the past. It has been the writer's observation that there are still growers who seem to be more interested in accepting a buyer's offer of a dime over the market than they are in the integrity of the buyer. In many cases they do not check to determine whether the buyer is licensed or how much bond, if any, he has posted.

Any grower can get this information by calling or writing to the Florida Citrus Commission at Lakeland, or to the State Department of Agriculture at Winter Haven. We can also advise whether there are any claims pending against a dealer. Many growers take advantage of this service, particularly where they are considering a transaction with some dealer they know little or nothing about. Several growers called us this past season about dealers who had some claims filed against them and when they learned this they either demanded cash for their fruit or refused to deal with them.

You might ask how a dealer can continue to operate if he has some claims filed against him by growers. The fact that a claim has been filed against a dealer does not necessarily mean that the dealer is liable. In

some cases there are disputes and the claim may not be a valid one. When a claim is filed with the Commissioner of Agriculture against a dealer, the Commissioner advises the dealer of the claim and requests an answer within a certain period of time. If the dealer denies that he owes the amount claimed, the Commissioner then holds a hearing at which the person making the claim and the dealer are heard.

All of the details of the transaction are brought out and after studying the record of the hearing, the Commissioner of Agriculture makes a finding in the case. If he finds that the claim is not justified, he dismisses it. If he finds that it is justified, he so notifies the dealer and orders him to pay it within a certain period of time. If it is not paid, the Commissioner then revokes the dealer's license and calls on the bonding company to pay the claim up to the amount of the bond. However, the bonding company is not requested to pay until 90 days after the end of the shipping season which is November 1st. This is to allow time for any other growers who have claims against the dealer to file them and be heard.

In some cases there are several claims against a dealer and if the bond is not sufficient to cover all of them, the full amount of the bond is paid to the Commissioner of Agriculture by the bonding company and the Commissioner then prorates the money among the claimants. For example, if the amount of the bond is \$10,000 and the amount of the claim \$20,000, then each grower would receive one-half the amount of his claim.

If any grower has a claim against a dealer, he should notify the Commissioner of Agriculture within the time prescribed by law. There is no charge to the grower for handling his claim.

This past season has been one of the worst in my memory from the standpoint of claims filed against dealers for failure to carry out contracts. Fruit prices, particularly orange prices, were high last season and some dealers suffered heavy financial losses. This season to date approximately 70 claims have been filed against citrus dealers in an aggregate amount of over \$300,000.

I believe this all points up the need for a grower to satisfy himself that a dealer who is trying to buy his fruit is licensed and bonded, and also to determine whether there are any outstanding claims against him. The law is for the protection of growers

(Continued on Page 28)

# Solving The Problems Of Marketing Fresh Grapefruit

... BY ...

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SALES MANAGER,

FLORIDA CITRUS EXCHANGE

Paper presented at Camp McQuarrie  
August 10, 1961

The successful marketing of fresh grapefruit is certainly of vital importance to everyone in the State of Florida. Most of the fabulous tales of success in Florida citrus revolve around the orange grower. Most of the emphasis of promotion, advertising, and perhaps even research have centered around oranges. And yet each year grapefruit production makes up between 25 and 30 percent of the state's citrus production.

This diversification of production is most important. In the first place we have no assurance that orange prices will always remain high. We have ahead of us years of greatly increased supplies. Since most growers have both grapefruit and oranges, it becomes doubly important that we have a sound profitable grapefruit industry and to the grower of grapefruit alone it is even more vital. In fact it is his economic salvation.

In solving any problem in marketing the most important underlying fact is to first realize there is a problem. To then determine whether it is an immediate problem or one of long range. Then finally to realize the facts that have created this problem.

In the case of fresh grapefruit it is very safe to assume we have an immediate problem which could well become more serious as national production increases. It appears in order to list the major factors involved in fresh grapefruit marketing.

I. The North American people by nature or habit have developed a "sweet tooth". They desire fruits of a natural sweet or bland nature. Proof of this is evident in taste tests, and in the successful movement of relatively sweet products. Ade drinks, natural juices and bottled beverages all bear out this trend.

II. Lack of sufficient funds for an all out merchandising program on fresh grapefruit. True we have come a long way in advertising and merchandising of fresh grapefruit, but we must be sure what we do have available is put to best use and that we make every effort to obtain more funds for this well channeled effort.

III. Too many different sizes and containers for packing grapefruit. The number of sizes allows selection such that more sizes are left unsold than would be necessary. Variance in containers brings about confusion in

the buyers' minds as to prices as well as sizes.

IV. Lack of effort and thought in pricing of fruit based on demand for a particular size of fruit. Staying oversold on desirable sizes and undersold on the more undesirable sizes.

V. Improper distribution and inconsistency of supplies due to last minute buying by some customers and lack of confidence in a market by shippers to maintain an even flow of supplies. We must be in a position to increase or decrease our output more rapidly with demand.

VI. Cost of harvesting, packing and handling of fruit must be held at a minimum. Too much variance between the efficient and non-efficient operator in costs for the above services. We must study and employ every method to cut costs.

VII. The actions of shippers on occasion to ship grapefruit of inferior nature — that is fruit showing a little breakdown or perhaps over-mature. Practising false economy in trying to save on refrigeration or inferior transportation.

VIII. Competitive grapefruit of good quality being offered at low prices from Texas. Also an increase in production from Texas, California and Arizona.

IX. Competition from other fruits. There has been a remarkable change about in varieties and in handling of competitive fruits. New varieties of peaches now make this a competitor for the consumer dollar five months of the year. Apples due to the new controlled atmosphere storage system are a 12 month of the season competitor. Imported varieties of plums and pears are available over a very prolonged season, long after their normal U. S. harvesting period. Strawberries likewise are now available twelve months of the year.

These other fruit industries are not sitting still in sales promotion and advertising. They have raised millions of dollars for advertising and research. There are today several dozen agencies with merchandising

men combing the country in behalf of pears, apples, cantelopes, strawberries, competitive citrus, and even the unheralded potato.

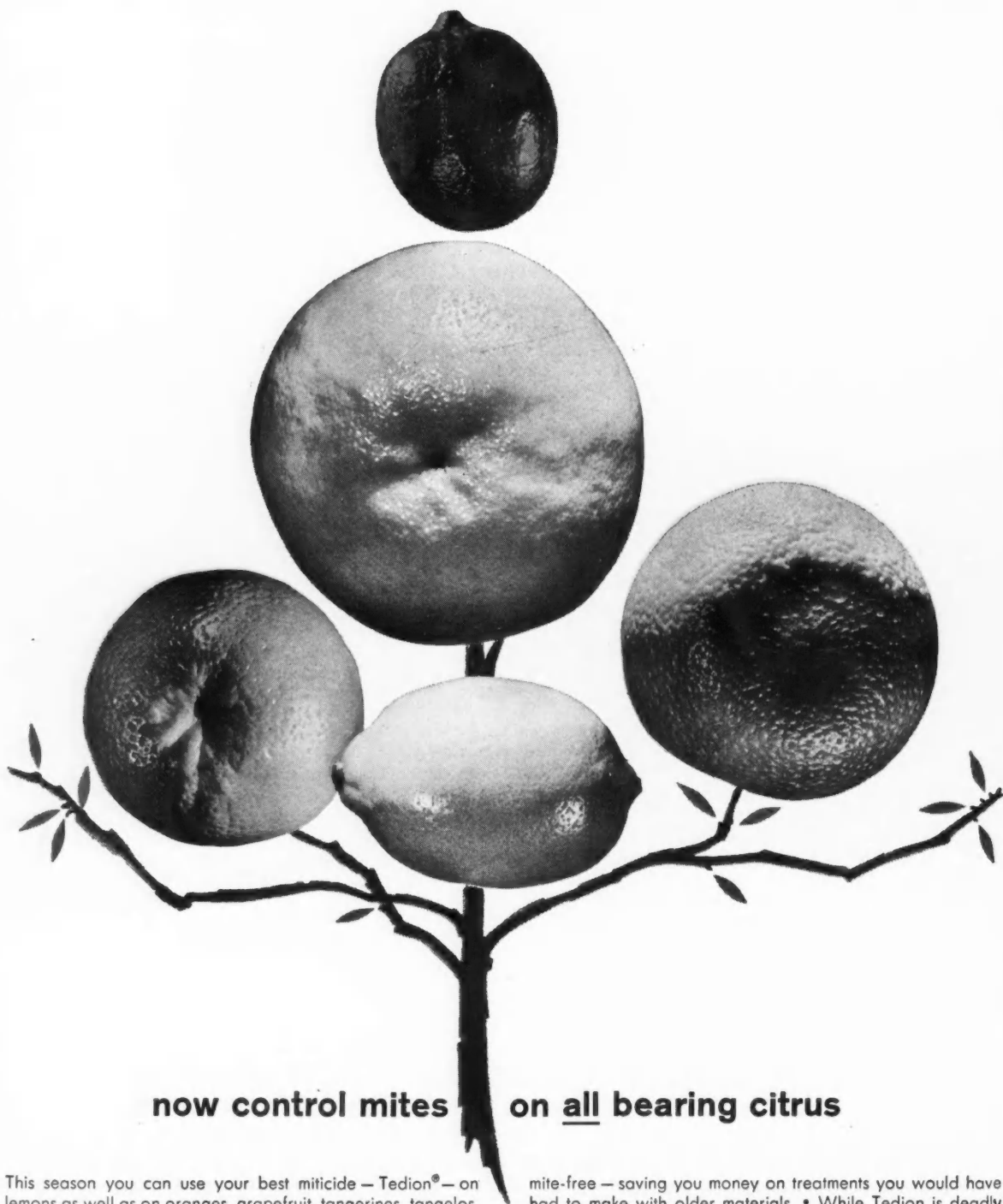
X. We have too many sales quotations and too many sales representatives for the number of buyers existing in the retail food business today.

We realize it would easily be possible to continue on in this fashion at great length. There are many more problems of varying importance in grapefruit marketing but we have attempted to point out those which are brought most to our attention through daily contact with the produce trade throughout the world.

Assuming we agree these ten problems are at least some of the major problems we face in marketing then it is certainly up to the existing marketing agencies to do their utmost to take the lead in solving these problems. Since it would be difficult to judge the order of importance of these problems we will attempt to deal with the solution as a whole rather than in order of importance.

The nature of grapefruit to tend toward the acid or slightly tart side may be overcome through use of sweetened additives. Cutting the fruit at night and adding sugar, allowing it to sit overnight for breakfast serving. Pushing the use of grapefruit with other fruits or juices of a bland or sweet nature. For the diet conscious, the use of honey or other non-fattening sweet substitutes. We should go to great lengths to emphasize there is no loss of nutrients and certainly no reason to make amends for the use of a sweetening agent during the time of year our acid is relatively high. We must emphasize to the housewife and the ultimate consumer how they may economically attain a good eating nutritious fruit by overcoming any objections to the necessity of using a sweetening agent. For the long pull we certainly must step up our research at the same time to see if we are capable of improving flavor and influencing acid and sugar content through sprays or fertilization. We may find this to be a relatively inexpensive process in relation to the dollars in sale volume we currently are losing. We find a person becomes more tolerant to tartness as they grow older. Perhaps

(Continued on Page 9)



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# Tedion

TECHNICAL CHEMICALS DEPARTMENT, NIAGARA CHEMICAL DIVISION, FMC CORPORATION, MIDDLEPORT, NEW YORK



## SOLVING THE PROBLEMS OF MARKETING FRESH GRAPEFRUIT

(Continued from Page 7)

this is partially why this group are such excellent grapefruit customers. However we must search out ways to appeal to the taste of the younger group which is the area of greatest population growth, and the group buying the least fresh grapefruit.

We do not feel at the moment the necessity for a higher tax on grapefruit, but the need for an immediate reappraisal of our whole fresh grapefruit ad and merchandising program. However the funds now earmarked for use in merchandising and advertising are certainly not a great amount in relation to the volume of fruit we are selling fresh. Before we even think about how much more might be needed to saturate all profitable channels of sale we must first determine what our increased goal is going to be. In other words let's determine what could be accomplished if we had additional funds, then find a way to get them. It would appear that the possibility of increased exports, competition from promotion and advertising of other fruits and vegetables will require a greater effort in merchandising and advertising.

So it would seem that either we must get more for our dollar or obtain more funds in this field. The apple industry will spend an all time record amount on sales promotion, almost every variety of fruit and vegetable now has a merchandising and advertising program of increased strength. All of these programs compete with our efforts.

One thing is certain — every fruit crop in America seems to be on the increase — to give you an idea of production of a few fruit items regularly in the super market. We expect a 12 percent increase in banana production, 11 percent apple increase, and probably better than 10 percent increase in national citrus production in 1962 alone. The following year barring crop failures should show additional gains. Basically this means more competition from sales promotion, advertising, and merchandising than ever before being used on competitive crops or from citrus in other areas.

We believe that when you consider the goal — that is for every 10¢ per box additional revenue that we are able to return to the grower we are talking about a million and a half dollars of net grower return in the State of Florida on fresh grapefruit. This would indicate we could and

should look long and hard at sales promotion and advertising.

Competition from other growing areas on grapefruit will be a greater factor in the future. We can easily expect to have 15 million boxes from Texas, Arizona and California in the near future against some 8 million boxes at the present. We have little trouble competing with the production of Arizona and California as the trade recognizes the superiority of Florida grapefruit. We generally out-sell them in price and suffer very little loss of demand from this area. Texas on the other hand is producing a very good eating quality grapefruit in volume.

They, however, have many problems besieging them. They cannot hold a volume of fruit late, they have an extremely heavy percentage of fruit in ruby reds, and they are still relatively disorganized as to marketing and sales promotion. We can take the advantage here and make it extremely difficult for them to take back the markets they had some ten years ago before their big freeze. They are on the defensive as we currently have the greatest percentage of the grapefruit business and they must take some of it from us to be successful.

We believe that through promotion and good Florida quality we can continue to be the premium grapefruit throughout the mid-west. With our constant sales efforts of Florida grapefruit we can greatly halt their activities in eastern markets. Texas also has other problems such as extreme small sizes, and colder growing conditions which make freezes a more constant hazard. The high percentage of red grapefruit also is a detriment as most markets have a preference for mixed loads of Marsh seedless and ruby reds or a heavier demand for Marsh. We can and should capitalize on these factors which are decidedly Florida grapefruit advantages.

The size selection of Florida grapefruit can well stand a thorough going over. We are offering to the trade six sizes of fruit which are normally considered to be acceptable commercially. In spite of this selection most retailers feature either a small grapefruit and a large or at best a small, medium, and a large. Many times we go through a costly sizing procedure at the packing house only to have these sizes again grouped together in store displays.

We have such tolerances among sizes anyway that a grouping into a small, medium, large and extra large could well cover all fruit currently

being packed. We feel this new method of sizing would enable the State to more readily fill our buyers' size requirements and eliminate a certain amount of competition among sizes to the definite betterment of the industry. In other words we could fill the buyers' specifications quicker and easier, make for a simplified packing house procedure, and in turn do a better job for the grower. Likewise we have entirely too many containers for packing our fruit. Sooner or later a decision should be made as to the best and most economical packages for our grapefruit. We have at present three types of rigid containers and 4 different type or size bags being used.

There will probably be an effort made to add another type bag this season. Here again let research win out, but let's get some positive standards over the next few years and settle on a minimum number of containers. When you consider that most produce buyers are concerned with buying many individual items the more simplicity we can offer and ease in ordering perhaps the more attention and interest we command. In almost every commodity we have seen changes in packaging over the last few years, however the shipping container of most major produce items are generally being standardized. I believe we are relatively safe in saying that our Florida citrus has less package standardization than most any major fruit industry in the United States.

We should certainly include with the size and container discussion the general theory of pricing. This is something close to my heart and of daily occurrence in fresh grapefruit sales. It is our belief that at times sales personnel could have a faster reaction to a market trend. We attempt to balance the supply and demand factors as best we can. However at times we underestimate the demand for a particular size or variety. In years of small sizes we often feel that large sizes should demand a premium and we are able to command it.

However nature usually blesses us here in Florida and we may find that our sizes have grown considerably thereby creating a surplus of sizes we earlier did not believe we might have available. We feel perhaps more thought should be given to sizes of fruit for each given short period of time and pricing be more flexible to meet these changing situations. We have seen too many seasons go by where pricing by size of fruit creates

(Continued on Page 28)



# Some Problems Facing Florida Agriculture

Most of you will probably wonder why, with conditions as they are in Florida citrus industry, we want to talk about problems.

Certainly most citrus growers have been managing to get along all right for the past two or three seasons, with orange prices averaging \$2.88 per box on the tree in 1958-59 and \$1.96 per box in 1959-60. The total on-tree value of all citrus in 1959-60 was \$219,774,000.<sup>1</sup>

Our Florida citrus industry as a whole continues to boom, and we are now in the position of having 66% of the total citrus acreage in the United States, and last year we produced that same percentage of the tonnage grown in the nation. This amounted to a total of 126,020,000 boxes of fruit out of a U.S. total of 190,630,000 boxes.<sup>2</sup>

Certainly there is good reason for optimism throughout the industry, so why be pessimistic or look for trouble spots?

Perhaps I am just naturally a little pessimistic, or maybe I actually do see real trouble ahead for Florida agriculture, including the citrus industry. In any event, when Bob Norris wrote me about taking a spot on this program, I accepted because I felt an urge to share with you a few of my concerns. I might add that these concerns are not mine alone, but that they are shared by agricultural leaders and others.

All of us recognize that our citrus industry has made phenomenal growth over the years. This growth has been due to many factors, including our favorable climate, strong leadership and cooperation within the industry, a willingness and even insistence on working out the answers to vexing problems, strong public support, and a strong research and educational program.

The last three, public support, research and education, are tied closely together. By public support, I mean research and educational appropriations at Federal, State and County levels as well as favorable consideration in other areas affecting the industry.

This support, however, has stemmed from an informed and sympathetic

... BY ...

**M. C. WATKINS, DIRECTOR  
AGRICULTURAL EXT. SERVICE**

Paper presented at Camp McQuarrie  
August 10, 1961

public. A public that by and large was farm oriented and with agricultural backgrounds. A public that had a personal acquaintanceship with the problems growers face.

But, in the recent past this situation has changed rapidly. Florida, like most other states, is now predominantly urban.

Our latest census shows a population of 4,951,560 persons; a growth of 2,180,255 in the last 10 years. Of the total population, 73.9% are urban.

This public today which is rapidly expanding in numbers has many wants and needs. We see these needs presented to our State Legislature, our Congress, Boards of County Commissioners, School Boards and others. They take the form of new schools, roads, airports, public service to new subdivisions, new mental institutions, correctional institutions. This rapid growth in numbers means reaching out constantly for more land. It is placing more pressures on water, mineral, and wildlife resources. All of these require ever increasing public financial support and there is tremendous pressure to supply it. The problems are real and present and must be met.

This new public is by and large not now interested in citrus problems or any agricultural problems for that matter for two reasons.

First, the residents of Florida and the nation have the best diet of any nation in the world. Florida's citrus juices, with their health-giving properties are a part of this diet. They buy this diet at a lower price than would be true in any other nation of the world in terms of the number of hours of work they must put in to purchase it. U.S. citizens spent approximately 20% of their total income for food. Most people of the world spend about one-half. This occurs at a time when America has great stock piles of food on hand. Why should Americans be concerned about agriculture with such abundance?

Second, as indicated a minute ago, today city people by and large were not raised on farms and do not under-

stand farm problems. They have little knowledge of the tremendous increase in capital requirements on today's farms, the fact that farming is a highly efficient industry and that margins of profit to growers per unit of production are very often quite small, or that by and large the farmer receives less than 40c of each dollar the consumer spends for food. The information they do receive on agriculture in the press, through magazines and otherwise would tend to create an impression that producers are wealthy, that they receive large government subsidies, and that legislation at national levels is generally favorable to them. Certainly as far as the citrus grower is concerned most of these images in the mind of the American public are far from correct.

Agriculture in Florida and the nation as well has a tremendous public relations job to do. We are already feeling the results of a lack of understanding on the part of those who determine the destiny of this state and nation. There are a number of serious problems on the horizon which have their roots in this situation. Many of these are evident in the comments I have already made. They include the following:

1. A rapid decrease in citrus acreage in some parts of the state as citrus groves are being replaced by roads, subdivisions, airports, etc. Little consideration is being given to the long-term effect on the state from an economic standpoint of the obvious decline in our basic productivity which this will involve.

The problem belongs to the state, the county, and the communities in looking at the need for county-wide zoning with a view to determining whether or not our roads, our subdivisions, our airports and our other land-using needs can be located on areas which are less favorable for agricultural production, thus saving the more suitable lands for continuing our agricultural growth in the state.

The problems are deep and complicated. They involve overall planning for the development of our state's resources, as well as careful planning on an area

<sup>1</sup> Florida Citrus Fruit Annual Summary, 1960, Prepared by Paul E. Shuler and J. C. Townsend, Jr., Florida Crop and Livestock Reporting Service, Orlando, Florida.

<sup>2</sup> Ibid

and community basis. Tax structures are involved.

2. The general lack of understanding of and appreciation for agricultural problems is being reflected in public concern over agricultural use of pesticides, labor problems, and other areas where the general public and agricultural interests merge. Let me hastily admit that these two problems are of concern to all of our citizens, but in working out the needed solutions to them there needs to be a better understanding on the part of the public of the necessity of using pesticides in the continued efficient production of agricultural products, including citrus.

It would be very easy, for example, for Florida to adopt rules and regulations, through legislation or otherwise, which would make it difficult for Florida growers to compete with those in other states. The same thing is true with regard to Florida's use of labor. Recognizing that there are problems involved and that we must be fair to labor, is not enough. We must also recognize that labor legislation could make it difficult for us to compete.

3. Another problem which concerns us in research and educational circles a great deal is the leveling off, particularly at the state level, in appropriations for research and education. We, in the University system, appreciate the salary increases which were provided us by the past legislature as a part of the state's university system. However, as you may know, there were few if any increases in personnel and facilities for further advance in research and educational work.

Those of you in the citrus industry are quite aware of the need for what we term "basic research". Citrus research is of a long time nature, and it may take 20 years to get the answer to a basic problem. Such research as is being conducted on root stock's spreading decline, the various viruses, is all quite necessary. We must continue our research to make Florida's citrus products the best in the nation. This includes work on fresh fruit, chilled, frozen and powdered juice, and work to discover and expand our use of by-products.

In the educational end, we in Extension feel we must continue to explore more efficient ways of

keeping you, the grower, and you in industry informed on the latest information which makes it possible for you to do an efficient and effective job. Through our institutes, our schools, our seminars, through the individual meetings which county agents hold for you along with their individual help on problem areas, through publications and otherwise, producers of citrus fruit in this state must be up to the minute in their information.

We feel we are somewhat lagging in the field of working with producers and the industry in the area of handling of fresh fruit, packing, processing and harvesting work. We would like very much to expand our work with youth in the area of citrus to help these young men become more familiar with citrus operations, to assist in preparing them for careers in the field of citrus, including research and educational work.

These and many other problems will become more and more difficult to solve in the future unless there is a better understanding on the part of Florida citizens of just what our agricultural industries mean to them.

They need to know, for example, that farm products last year sold for \$50 million dollars. That marketing services added to these products brought the total involved to approximately 1.4 billion and that this figure was exclusive of forestry or livestock involving pets or racing. They need to know that there are approximately 125,000 persons engaged in farming in Florida and that an additional 128,000 people are involved in the marketing process for these products, or a total of 253,000 persons approximately one-third of the 800,000 employed in Florida in 1958 engaged in some gainful pursuit connected with agriculture. They need to understand that our agricultural industries are basic to the growth and economic development of Florida which in turn is tied to our own future and financial well-being. Somehow our people must take a look at the total picture in Florida and envision the long time results of the actions they take today. If, as we believe, our agricultural industries are vital to our total economic structure, short sighted policies today could really kill the goose that laid the golden egg. This is the message which citrus growers, industry people, and others must take to our new Florida public if our problems are to receive the attention they deserve. We in the Extension Service

are focusing attention on this vital need in our educational work and plan to do all that we can in the years ahead to present basic and unbiased facts to the general public. We need your help and need your support.

## Hedging Subject of Study By Station

Land, production and harvesting costs have increased the need for hedging citrus groves, according to Dr. D. W. Kretchman, assistant horticulturist with the Citrus Experiment Station.

Current research in this field includes rejuvenation of canopied groves, development and reshaping trees to facilitate harvesting and shaping younger trees to facilitate harvesting.

Different spacing of different varieties and dwarf rootstocks are now being tested by Experiment Station workers.

Researchers point out that hedging should be started before trees become crowded. The most desirable time of year is prior to the first spring flush.

Valencias and grapefruit are exceptions and should be hedged after the danger of cold is passed and before the second flush. Any hedging done after the second flush of growth could result in crop reduction and increased susceptibility to cold.

The general trend of hedging experiments at the Station include a slight reduction in yield the first year; an increase in the second year which makes up for the reduction; no difference in production from hedging on two or four sides; and greater differences in yield experienced on the crop production trees.

Dr. Kretchman says one of the problems of buckhorning and severe pruning is poor healing. He adds that selective topping, where three to five major limbs are removed from the top of the tree, may be the answer in tangerine production.

Other experiments currently underway by the citrus researchers include the use of picking platforms and shaping trees to a width of six feet, 15 feet high and planted on 12½ foot rows, and use of MH-30 in combination with topping on lemons.

## Board of Directors Florida Citrus Mutual



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The new directors for the forthcoming season on this board are Herbert S. Massey, W. Elton Clemmons and Chester J. Karst.

### H. G. Clayton, Former Agricultural Extension Service Director Dies

Harold Gray Clayton, 70, former head of the Florida Agricultural Extension Service, died July 18 at Gainesville, following a lengthy illness.

Clayton headed the state's Agricultural Extension Service for nine years — from 1947 until his retirement in 1956. He joined the Extension Service in 1917 as a county agent in Manatee County.

President Franklin D. Roosevelt named Clayton to head the Agricultural Adjustment Administration in Florida in 1933, when the agency

was first established by Congress.

Clayton continued as director, administrative officer or executive officer of that agency through its numerous name changes until 1947, when he was chosen as the fourth director of the Extension Service.

A native of Ocala, Clayton was educated in the state schools and graduated from the University of Florida with a degree in agriculture.

During World War II, Clayton served as chairman of the State War Board. During his tenure as director of the Extension Service he was also administrator of the State Soil Conservation Board.

He was chosen "Man of the Year in Service to Florida Agriculture" by The Progressive Farmer magazine during the 1930's.

Survivors include his wife, Harriet, and a daughter, Mrs. M. D. May of Ft. Walton, Florida.

### Need for Citrus and Vegetable Mechanical Harvest Methods Seen

About 200 million boxes of citrus fruit are harvested and handled annually at an estimated cost of \$50 million, and there are few mechanical aids available to do the work. Labor for picking constitutes one of the major citrus production costs.

Each year more than 1000 persons are killed in farm tractor accidents — over the last 8 years the death rate has climbed 50 percent. One-third of tractor fatalities occur on the highways.

# Tree Spacing And Thinning

by

R. E. NORRIS

Lake County Agricultural Agent

Paper presented at Camp McQuarrie  
August 10, 1961

removal, topping (or "buckhorning") and close spacing with subsequent thinning.

The latter practice is the one for discussion in this paper. It has been adopted by a sizeable number of growers in Lake County in recent years. None of the growers have had the practice in operation sufficiently long to obtain much data, but from a practical aspect they

Tree spacing and thinning operations are an important part of grove management for the obvious reason that because of the high cost involved in producing fruit it is mandatory that the yield of good quality fruit be maintained at its highest potential on each planted acre. This cannot be done when trees are too far apart or when they are too close together. And, unfortunately, as trees grow from small to large their space requirement changes so that if all of the available space is used efficiently when the trees are young, something will have to be done as they grow to keep them from becoming too crowded.

Research investigators, particularly Doctor Dale Kretchman of the Citrus Experiment Station at Lake Alfred, are investigating ways of handling trees by hedging, pruning, thinning, topping and otherwise to arrive at the most satisfactory

methods for handling the spacing and subsequent shaping problems.

Grower practices, in an effort to achieve this end have, so far, gone in four general directions. These include hedging, thinning by tree

Table 4. Average Net Returns Per Acre Per Season, 1940-57

Age Range	Under 50		90-99		Estimate of Combination
	Trees	Per Acre	Trees	Per Acre	
5 - 9		\$ 41		\$ 75	\$ 75
10 - 14		100		192	192
15 - 19		135		264	268
20 - 24		158		266	271
25 - 29		169		194	216
30 - 34		182		133	171
35 - 39		208		78	139
40 - 44		229		41	229
45 - 49		247		14	247

Table 1. Average Yield of Mixed Citrus in Boxes per Acre per Season, 1940-57

Age Range	Under 50		90-99		Estimate of Combination
	Trees	Per Acre	Trees	Per Acre	
5 - 9		71		142	142
10 - 14		130		260	260
15 - 19		179		336	339
20 - 24		212		358	362
25 - 29		235		325	345
30 - 34		259		300	334
35 - 39		295		275	330
40 - 44		327		251	327
45 - 49		355		215	355

Table 3. Yields, Cost and Return Data for Single - and Double - Set Groves, 1940-57

Yield in boxes per acre	Trees Per Acre			
	Under 50		90-99	
	Single Set	Double Set	Single Set	Double Set
	229		274	
	Acre	Box	Acre	Box
Operating Cost	\$102.56	\$ .45	\$177.68	\$ .65
Returns from fruit	265.90	1.16	317.32	1.16
Net above operating cost	163.34	.71	139.64	.51
Advantage of group in net	23.70			

feel that it has merit and are trying it.

In substance, the plan is to plant orange trees at fairly close spacing, say 15' x 25'. As the trees begin to grow together, alternate trees in the 15 foot spacing are hedged just enough to keep the branches from touching those in the adjacent tree. The same trees are hedged each year or two as the gap between the trees close. When the bearing surface is finally removed from the hedged trees they are removed and the permanent planting is then 25' x 30'. One of the problems in removing alternate trees as they become crowded is that growers dislike to remove trees that are bearing even though they feel that their production would be better if they did so. This system quite effectively helps him overcome his reluctance

(Continued on Page 16)

Table 2. Cumulative Production in Boxes Per Acre With Comparisons

Age Range	Under 50		90-99		Advantage of Combination Over:	
	Trees	Per Acre	Trees	Per Acre	Under 50	90-99
					Trees Per Acre	Trees Per Acre
5 - 9		355		710	355	None
5 - 14		1,005		2,010	1,005	None
5 - 19		1,900		3,705	1,805	15
5 - 24		2,960		5,515	2,555	35
5 - 29		4,135		7,240	3,105	135
5 - 34		5,430		8,910	3,480	305
5 - 39		6,905		10,560	3,655	580
5 - 44		8,540		12,195	3,655	960
5 - 49		10,315		13,970	3,655	1,660



*Program For*  
**TWELFTH ANNUAL CITRUS PROCESSORS' MEETING**

University of Florida  
Citrus Experiment Station, Lake Alfred, Florida

**Tuesday, September 19, 1961**

**Morning Program 9:45 A.M. - 12:15 P.M.**

1. Introductory Remarks. L. G. MacDowell, Research Director, Florida Citrus Commission, Lakeland, Florida.
2. Prediction of Potential Clarification and Gelation in Frozen Orange Concentrate. M. D. Maraulja, Florida Citrus Commission, Lake Alfred, Florida.
3. Quaternary Ammonium Fungicides from Citrus Limonene. W. F. Newhall, Florida Citrus Experiment Station, Lake Alfred, Florida.
4. Flavor Research Investigations.
  - (a) Recent Studies in The Recovery, Separation, and Analysis of Volatile Flavor Components of Orange Juice. R. W. Wolford, Florida Citrus Commission, Lake Alfred, Florida.
  - (b) Some Techniques Employed for Subtractive Analysis of Complex Mixtures of Flavor Components. G. E. Alberding, Florida Citrus Commission, Lake Alfred, Florida.
  - (c) Further Progress in the Chemical Identification of Volatile Flavor Components of Orange Juice. J. A. Attaway, Florida Citrus Commission, Lake Alfred, Florida.

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**Afternoon Program 1:30 P.M. - 3:00 P.M.**

5. Land Conservation in Florida for Maximum Profitable Utilization. H. F. Swanson, Orange County Agricultural Agent, Florida Agricultural Extension Service, Orlando, Florida.
6. Comparison of the Internal Quality of Lemons Grown in Florida. S. V. Ting, Florida Citrus Commission, Lake Alfred, Florida.
7. Controlled Freezing of Orange Trees and Fruit.
  - (a) Response of Orange Trees and Fruit to Freezing Temperatures. C. H. Hendershott, Florida Citrus Commission, Lake Alfred, Florida.
  - (b) Characteristics of Orange Juices and Concentrates Obtained from Frozen Fruit. R. L. Huggart, Florida Citrus Commission, Lake Alfred, Florida.
  - (c) Microbiological Examination of Frozen Fruit. E. C. Hill, Florida Citrus Commission, Lake Alfred, Florida.



# The Effect of Complete Fertilizer Foliar Sprays On Solids Content of Oranges

... BY ...

DR. O. N. NOLAN

Paper presented at Camp McQuarrie  
August 10, 1961

In recent years a number of growers have expressed an interest in the effect of complete foliar fertilizer sprays on the production of citrus. In view of certain conflicting reports about the value of these sprays, it was decided to investigate the effect of these foliar fertilizer sprays on the solid content of citrus fruit.

During the season 1960-61 a number of field tests were carried on to study the effect of complete nutritional foliar sprays on the solids formation in citrus. These tests were conducted in cooperation with a number of grower members of the Foundation in Polk, Lake, Orange, and Marion counties. Three commercial foliar fertilizer sprays were used in these tests. In all tests the manufacturer's recommended rates and timing of fertilizer sprays were followed as closely as possible. These sprays were applied as supplemental fertilizers with the grower following his normal fertilization program without making any allowances for the foliar sprays.

Fruit samples were collected from the test plots as the oranges reached maturity. The solids, acid and juice content were determined on the samples by the official state testing procedures. The number of fruit per sample and other testing procedures are given in Table I.

Table I gives the results of one of the tests from Pineapple oranges on rough lemon rootstock grown on Lakeland fine sand. The non-sprayed



Dr. O. N. Nolan

(check) plot in this test contained higher solids at the final testing date than any of the sprayed plots. The acid content of the sprayed plots was lower than the check treatment; therefore, the solid/acid ratio was about the same for all treatments. Under the conditions of this test, spraying with a complete foliar fertilizer did not increase the solids content of Pineapple oranges.

The data on the foliar fertilizer sprays represent one year's study. While the data from only one of the tests are shown, results of the other tests were very similar to those presented here. Under the conditions of these tests (field plots) spraying with a complete foliar fertilizer did not increase the solids content of oranges.

Table I  
THE EFFECT OF FOLIAR FERTILIZER SPRAYS ON THE  
PERCENT SOLIDS AND ACID OF PINEAPPLE ORANGES

Materials Used	Date Applied	Date Tested	% Solid	% Acid	Ratio Ratio
A	4-12-60	12-19-60	9.25	0.87	10.63
	and	1- 3-61	9.95	0.83	11.99
	8-11-60	1-30-61	9.70	0.77	12.60
B	4-12-60	12-19-60	10.00	0.77	12.99
		1- 3-61	10.15	0.78	13.01
		1-30-61	10.20	0.75	13.60
C	4-16-60	12-19-60	9.40	0.78	12.05
	and	1- 3-61	9.95	0.83	11.99
	5- 3-61	1-30-61	10.40	0.76	13.68
Check - non Sprayed		12-19-60	9.50	0.83	11.45
		1- 3-61	10.10	0.90	11.22
		1-30-61	10.90	0.82	13.29

#### Testing Procedure:

1. 20 oranges per test, taken from same relative height on trees.
2. 4 fruit from 5 trees, one from each quarter.
3. Same size fruit used at each sampling date.

## Program For Citrus Processing Conference At Winter Haven

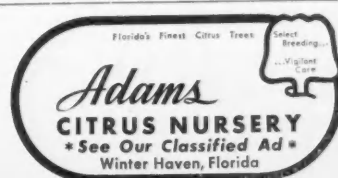
The chemistry of citrus will be featured at the morning session of the Eleventh Annual Citrus Processing Conference in Winter Haven, Fla., set for Sept. 20. The conference, sponsored by the U. S. Fruit and Vegetable Products Laboratory, a field station of the Southern Utilization Research and Development Division of USDA, is to be held in the Florida Room of the Citrus Building.

The morning session opens at 9:45 a. m. The first paper will be on "The Rapid Estimation of d-Limonene in Citrus Juices," by M. K. Veldhuis and L. K. Hunter, of the U. S. Fruit and Vegetable Products Laboratory. R. M. Horowitz and Bruno Gentili, of the Fruit and Vegetable Chemistry Laboratory, Pasadena, Calif., are authors of the second paper, "Recent Advances in the Chemistry of Citrus Flavonoids," and Lyle J. Swift, of the Winter Haven Laboratory, will present a talk on "Sinensetin, a Pentamethoxyflavone from Orange Peel."

During the afternoon session, which opens at 1:30, B. J. Lime, of the U. S. Fruit and Vegetable Products Laboratory, Weslaco, Texas, will give a progress report on the preparation of pulp-fortified concentrate from Ruby Red grapefruit. "Foam-Mat Drying of Orange Juice: Progress in Foam Preparation, Drying, and Storage Studies," is the subject of a paper by Owen W. Bissett, James H. Tatum, and Charles J. Wagner, Jr., of the Winter Haven Laboratory. Latest developments in the foam-mat drying processes will be discussed by A. I. Morgan, Jr., of the Western Utilization Research and Development Division, Albany, Calif.

Anyone interested in utilization research on citrus is cordially invited to attend, according to Dr. C. H. Fisher, Director of the Southern Division.

Additional details about the conference may be obtained from Dr. M. K. Veldhuis, U. S. Fruit and Vegetable Products Laboratory, 600 Ave. S, N. W., Winter Haven, Fla.



## State Department of Agriculture - Its Relation To Florida's Citrus Industry

BY STATE COMMISSIONER  
OF AGRICULTURE  
DOYLE CONNER

Paper presented at Camp McQuarrie  
August 10, 1961

When we talk of citrus in Florida, we are talking about an industry which contributes more than 40 per cent of the state's agricultural "gross product" — the "agri-business" volume which today is estimated in the neighborhood of 2 billion dollars.

That figure is the sum total of all income from agricultural production and its related industries. It represents about one-fifth of the state's total gross product which recently has been estimated in excess of 10 billion dollars.

The estimates for agriculture do not include all of the services dependent upon agriculture for their existence. But they are proof that agriculture is basic, that it contributes to the welfare of all citizens of our state, and that it is one of the most important customers of business and industry.

To explain to you something about the relation of the Florida Department of Agriculture to the state's citrus industry, let me point out first that the Department is charged with, and is dedicated to, serving the interests of

- (1) The agricultural producers.
- (2) The consumer (and everyone in the state is a consumer).
- (3) The processor and distributor.

When reorganization of the Department became effective in January of this year, those interests became officially represented in the membership of the Agricultural Advisory Council and the several technical advisory committees created by the Legislature to counsel with and advise the Commissioner on all phases of the Department's activities.

These committees are extremely valuable and of great assistance to me in arriving at policy decisions that are bound to have far reaching effects on the welfare of Florida agriculture in general, and on any one of its several branches in particular.

Because maintenance of quality of our Florida products is necessary to achieve and hold a preferred position in the markets we serve, inspections are a vital service and protection which the Department provides to our agricultural producers.

Every part of the citrus industry

is furnished with the most effective inspection possible. Through training and supervision of inspectors, co-operation and consultation with industry and other citrus agencies, and the development of better testing facilities and equipment, the Division of Fruit and Vegetable Inspections is continually improving its service to all phases of the citrus industry.

Various activities under the Department for citrus fruit which is shipped fresh include inspection for maturity, artificial color, grade, size, pack and the application of numerous portions of the Citrus Code and regulations of the Florida Citrus Commission, and the Growers Administrative and Shippers Advisory committee.

Inspection of citrus for processing and the inspection of the processed pack itself, include maturity, internal quality, condition, and grade inspection of the finished product.

### TREE SPACING AND THINNING

(Continued from Page 13)

to remove the alternate trees.

Zach Savage, Agricultural Economist with the Florida Agricultural Experiment Stations has prepared some tables which tell the story graphically.

Discussion — Three methods involving two setting distances are reviewed in the tables above pre-

The technical section of the Division is concerned with duties in connection with the administration of the Citrus Code, including routine analysis, testing of fruit treatment materials, standard testing solutions, and the supply of testing materials and equipment to the field force.

Under this Division also is enforcement of the Bond and License provisions of the Citrus Code. This function is of great importance to a producer because it provides a practical measure of protection against loss from non-payment for his fruit.

Recent developments in this field indicate claims against more than a dozen citrus handlers presently on file in the Citrus Bond and License section total more than \$250,000. This is probably the largest number of claims, and involves the largest amount of money, in Florida's citrus history.

But I would like to stress the fact that the Department's service to producers in recent years has been instrumental in holding actual losses on

(Continued on Page 18)

pared by Savage. Data for other setting distances would probably show similar trends favorable to the use of large numbers of trees per acre and the resultant maximum use of the available space on each acre planted. The most favorable results will be obtained in close spacings only when provisions are made to prevent trees from crowding each other, Savage points out. This results in maintaining the maximum leaf and bearing surface.

Table 5. Cumulative Net Returns Per Acre With Comparisons

Age Range	Cumulative Net Returns		Estimates of Combination	Advantage Of Combination Over:	
	Under 50 Trees-Acre	90-99 Trees-Acre		Under 50 Trees-Acre	90-99 Trees-Acre
5 - 9	\$ 207	\$ 376	\$ 376	\$ 169	None
5 - 14	708	1,333	1,333	625	None
5 - 19	1,385	2,655	2,671	1,286	\$ 16
5 - 24	2,176	3,985	4,024	1,848	39
5 - 29	3,023	4,954	5,104	2,081	150
5 - 34	3,931	5,619	5,957	2,026	338
5 - 39	4,970	6,006	6,650	1,680	644
5 - 44	6,116	6,212	7,796	1,680	1,584
5 - 49	7,350	6,254	9,030	1,680	2,764

Table 6. Yields, Costs and Returns for the Three Settings, 1940-57

Yield in boxes per acre	Under 50 Single Set		90-99 Double Set		Combination	
	229		274		310	
	Per Acre	Per Box	Per Acre	Per Box	Per Acre	Per Box
Operating Cost	\$102.56	\$ .45	\$177.68	\$ .65	\$159.43	\$ .51
Returns from fruit	265.90	1.16	317.32	1.16	360.12	1.16
Net above operating cost	163.34	.71	139.64	.51	200.69	.65

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—John H. Parker  
Haven Grove Service  
Winter Haven, Florida



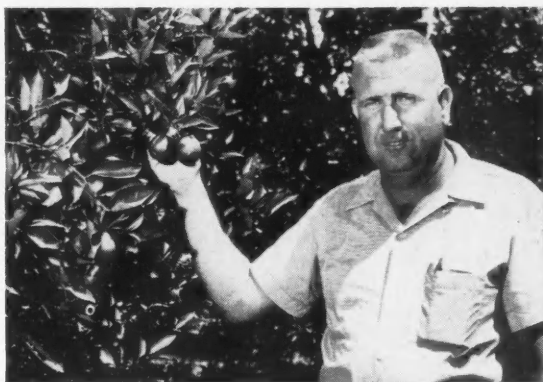
"Delnav is the most economical miticide for control of rust, purple, and Texas citrus mites . . ."

—Harvey Stembridge  
Stembridge Grove Service  
Lake Wales, Florida



"I have used Delnav for two years, with excellent control of purple mites, Texas citrus mites, and rust mites from fall until post bloom . . ."

—Leroy F. Gilliam  
Grove Service  
Clercona, Florida



"Delnav is the most economical. Controls citrus mites from fall until spring melanose spray . . ."

—W. J. Schuur  
Grove caretaker  
Orlando, Florida

Delnav has shown Florida citrus growers how they can gain superior control of mite infestations at *low cost*. One material controls all the major mites that attack Florida citrus—continues to give effective, long-lasting protection. And there is no pre-harvest waiting period. Fruit may be picked the same day Delnav is applied.

*DELNAV, a product of Hercules research in agricultural chemicals*

**HERCULES POWDER COMPANY**

(INCORPORATED)

Agricultural Chemicals Division

Hercules Tower, 910 Market Street, Wilmington 99, Delaware



SV61-1

## AGRICULTURE AND ITS RELATION TO THE CITRUS INDUSTRY

(Continued from Page 16)

claims for unpaid fruit to an extremely low figure — about 3/100 of 1 per cent of the total on-tree value of sales during the past 5 years for those growers who dealt only with licensed dealers.

You'll hear more about the Bond and License activities from another speaker. But I want to mention here that the 1961 Legislature strengthened the Bond and License Laws. Now the amount of bond which a dealer must provide, based on his estimate of the business he will handle, has been doubled in most instances.

And I can assure you that the Department is going to continue exercising the utmost care to make sure that the amount of bond required of citrus dealers and handlers will be reasonably adequate to protect the growers with whom they do business.

You'll be interested to know, I'm sure, that the records of the Department of Agriculture are of considerable value in the detection and apprehension of persons charged with citrus thefts. In a recent letter to the Department, Florida Citrus Mutual reported 128 persons were arrested by sheriffs in citrus belt counties during the first six months of this year. 66 of these arrests resulted in convictions, 30 had been bound over to Circuit courts and trials were pending, and 33 of the arrested persons were released because growers failed to press charges.

In addition, numerous other arrests had been made for other violations of the Citrus Code, such as buying fruit without a license and failure to have proper identification on vehicles moving fruit on highways.

A number of arrests were made on information gathered in whole or in part by members of the Department of Agriculture, and I'm happy to note that the sheriffs, according to Citrus Mutual, were high in their praise of the co-operation they have been receiving from the Department recently. You may be sure that our co-operation will always be given wholeheartedly to protect and advance the interests of the State's agricultural producers.

Another important phase of our services to the citrus industry are the numerous activities carried on by the Division of Plant Industry, as it is now designated in our reorganized department. Operated for the past 45 years as the State Plant Board, this

Division eradicated citrus canker from Florida in 1932, the citrus blackfly in 1938 and the Mediterranean fruit fly twice — once in 1930 and again in 1958.

Following the last fruit fly cleanup in 1958, the Plant Inspection Section has maintained a complete trapping system throughout the state. More than 8,000 traps are inspected and baited every three weeks, giving the Division an "early warning" network for detection of any new fruit fly invasion that may occur.

Important to growers, too, is the Division's Citrus Budwood Registration program, designed to eliminate known virus diseases from the citrus industry; checking of nematode populations and carrying on control programs against this pest; and various other programs to detect and prevent the spread of plant pests within the state.

Now, just a word about the future of agriculture in Florida, which naturally involves the future for citrus. I noted recently a private estimate, from an individual whose long experience and wide contacts in the industry qualify him to speak with some authority, that next season's orange crop will be about 102 million

boxes — a record-smashing total if it materializes.

If you should be wondering where Florida is going to find an outlet for a constantly increasing volume of its agricultural products, let me call your attention to just one thing — population. In this state the population jumped 78.7 per cent in the past 10 years, from 2¼ million to nearly 5 million. It is estimated this figure will jump another 60 per cent by 1970, to a total of 8 million.

That will give you an idea of the prospects for increased consumption at home. But while that is going on the population of our whole nation will be soaring also, and the teeming millions who constitute our big domestic markets for products such as citrus, also will be gaining by leaps and bounds.

We have been growing rapidly in Florida. Our agriculture must keep pace with the rest of the state's growth and with our nation's growth. Our citrus industry has been taking the lead in progressive marketing and distribution. I believe the Department of Agriculture will be in the forefront of progress in its service to producers, to consumers and to all segments of agri-business.



James S. Wood, Executive Vice President of Superior Fertilizer and Chemical Company, welcomes a new member to the Superior family. "We consider Superior Sally to be a valuable addition to our company. Why not let her show you the way to higher profits? Watch for Superior Sally who will give you important hints on the proper time to plant, fertilize, or spray for different citrus pests. And remember — for the highest quality fertilizers and pesticides — you can depend on Superior!"

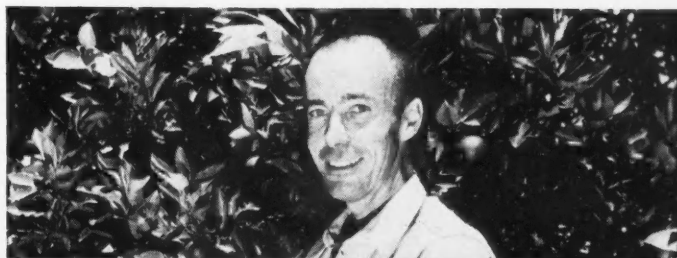
**CITRUS CORNER:** "Mr. Grower—don't forget to have your last application on your young trees by September 15th and be sure to check for red scale build-up."



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# tried and proven for FLORIDA CITRUS MITES... **DELNAV**\*



"I have used Delnav for 4 years with excellent control..."

**Edward A. Haley,**  
*Orlando, Florida*



"For 3 years, I've used Delnav and have gotten excellent control, economically..."

**Vinson Madden,**  
*Eagle Lake, Florida*



"Delnav lasts a long time, and is one of the best sprays I've ever used. I plan to continue to use it."

**A. O. Roberts,**  
*Howey-in-the-Hills, Florida*



"I have applied Delnav Liquid by aircraft to thousands of acres of citrus in the Indian River Section with excellent results..."

**Charles Stone, Jr.,**  
*Southeastern Aerial Crop Dusting Service,  
Fort Pierce, Florida*

DELNAV has earned first place throughout Florida ... For economical mite control, for long-lasting mite control. We are proud to continue to offer fine, proven Delnav formulations under the trusted FASCO label.

Manufactured by  
FLORIDA AGRICULTURAL SUPPLY COMPANY



DIVISION OF WILSON & TOOMER FERTILIZER CO.  
JACKSONVILLE, FLORIDA

\*Delnav is a registered Trade Mark of Hercules Powder Company



## CITRUS INSECT CONTROL FOR FALL SEASON 1961

(Continued from Page 3)

is when about 20% of the foliage is infested with any of the injurious mites. However, if scale or greasy spot control is required before time to spray for mites, the application should be timed for these other problems and include miticides.

**SCALE CONTROL:** Very few groves should need a fall scaleicide this year because severe infestations were not numerous this summer. Nevertheless, Florida red scale as well as black scale are a problem in some groves and it will be necessary to control chaff scale and purple scale where infestations of these scales have developed on fruit. Both purple and chaff scales cause green spots on fruit. These spots will not degreen and are a grade-lowering factor. They are especially important on tangerines and tangelos as well as early varieties of oranges and grapefruit. Parathion or malathion should be applied in August because later sprays will kill the scales, but fail to prevent the injury.

The same August timing is required for good control of black scale. Black scale infestations have been numerous, especially on grapefruit, and although they usually decline in August, control will be needed in some groves. Best results will be obtained with parathion applied in August when a large portion of the second generation will be in the young stages.

The maximum dosage of parathion or malathion should be applied to control Florida red scale when most of these insects are in the younger stages. This condition will occur in August in some groves, but will be later in others. The best time to spray for red scale should be determined for each grove.

The preferred scaleicides for August or later are 0.25 pound of technical parathion or 1 to 1.25 pounds of technical malathion per 100 gallon. Neither of these materials depresses soluble solids in the fruit juice or retards degreening, nor are they likely to cause as much leaf drop as oil.

Oil sprays are not desirable later than July. Oil is most likely to depress soluble solids and retard degreening of fruit when applied from August to October. Furthermore, if oil was applied at any time during the summer, a second application made from August through October will have a greater adverse effect on

solids and color than a single application. Under no condition should tangerines be sprayed with oil after July because it will prevent the development of good color. Trees sprayed with oil in October or later are more susceptible to cold injury and sometimes do not have a normal amount of bloom the next spring. In addition to scale control if oil should be necessary for any reason such as removing sooty mold, use 0.5 percent oil plus either 0.15 pound of technical parathion or 0.75 pound of technical malathion per 100 gallon. The 0.5 percent oil will not retard degreening of fruit or cause as much leaf drop as 1.3 percent.

Because some oils are more highly refined than others does not mean they will not cause leaf-drop, depress solids or retard degreening as much as the less highly refined oil emulsions.

**GREASY SPOT CONTROL:** In many groves the summer flush developed after application of the summer spray and is unprotected from greasy spot. This may not be serious where greasy spot has not been a severe problem, but it may be advisable to include copper in the fall application in groves with a history of greasy spot. Use 0.7 pound of 53% tribasic copper sulfate per 100 gallon or an equivalent amount of another neutral copper such as copper oxide. Fall copper sprays should be delayed to cover the fall flush as well as the summer flush. If mites become a problem before the fall flush is mature, however, the fall spray should be timed for mite control.

**BROWN ROT CONTROL:** Groves that have a consistent history of brown rot should be sprayed in mid-August with 0.7 pound of 53% tribasic copper sulfate per 100 gallon or an equivalent amount of another copper compound, but spraying may be delayed until symptoms first appear where brown rot has been an occasional problem. In either case, control may be obtained by spraying only the lower six feet of the tree.

**MITE CONTROL:** The best material for control of red spiders in September, October and early November is 0.5 pound of Tedium 25W per 100 gallon. This material has given the longest control of citrus red mite and Texas citrus mite of any of the miticides and offers the best chance of controlling red spiders until after bloom next spring, providing it is used properly. Tedium is a slow killer and should not be used after high populations of red spiders have developed unless supplemented with


a quick killer such as Chlorobenzilate or parathion.

Tedium is of no value against rust mite and must be supplemented with a rust mite miticide. Chlorobenzilate is preferred for this purpose at the dosage of 0.5 pound or 0.5 pint per 100 gallon of spray because it will give a good clean-up and lasting control of rust mite, will give a good clean-up of red spiders, and may be used with copper. Sulfur or a mixture of sulfur and zineb may also be used with Tedium, but are of no aid to red spider control and zineb cannot be used with copper.

Tedium should not be used on the same trees more than once each year because repeated use may result in resistant mites.

Although Tedium and a rust mite miticide can be used throughout the fall and winter months, after mid-November it is usually cheaper to use a combination miticide. Trithion or Ethion are preferable to Kelthane or Delnav from mid-November through December, but all four are likely to control rust mite and red spiders from January until postbloom.

Consult the 1961 "Better Fruit Program" for further details concerning dosage, compatibility of mixtures, precautions and regulations covering the use of pesticides.




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Growers who can use them  
profitably



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offices:  
**ORLANDO, EUSTIS, WINTER HAVEN**

## Plans Made To Improve Citrus And Food Products

Technical personnel and others connected with the Florida Citrus, Food, and Beverage industries soon will have the opportunity of learning about improved methods for checking the quality of manufactured food products for which they are responsible.

According to C. H. Brokaw, Chairman of the Florida Section of the Institute of Food Technologists, concentrated effort by that group has resulted in the offering of a course in statistical quality control (S.Q.C.) at the University of Florida in Gainesville, Florida from August 7 through August 12, 1961. The course will be jointly sponsored by the National Canners' Association, Washington, D. C., the University of Florida College of Agriculture and Florida Agricultural Extension Service, and the Florida Section of the Institute of Food Technologists.

M. O. Watkins, Director of the University of Florida Agricultural Extension Service has announced that the 6-day course will be open to anyone in the food industry concerned with processing, handling, and distribution of food commodities and who would like to learn how to use statistics or make im-

provements in their present use of statistics in quality control work. The class size will be limited to 40, however.

Major topics to be covered will be:

1. The problem of sampling.

2. Statistical Quality Control.

3. What to do when the process or procedure being measured is out of control.

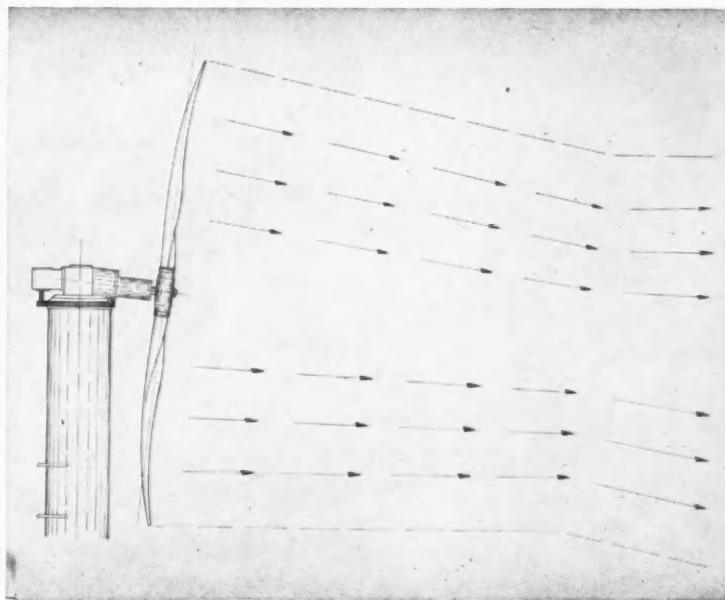
4. Analysis of case histories in the application of S.Q.C. to food processing.

Dr. Howard Stier, Director of the Division of Statistic, National Canners' Association and a nationally known authority on the use of S.Q.C. will be Head Instructor.

## What Does Range Mean?

### RANGE MEANS SAVINGS IN WIND MACHINES

The pre-coned fan of the Aladdin Wind Machine produces the same effect as a full choke shot gun. The column of air does not scatter close to the machine but is held together over a greater distance assuring coverage where other type blades give marginal or no protection at all.



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## October Deadline Set For Gas Refund

Florida farmers have until October 2, 1961, to file claims for refund of federal tax on gasoline used for farming purposes.

Economists with the Florida Agricultural Extension Service say claims may be filed by farm owners, tenants, or operators for the period July 1, 1960, through June 30, 1961.

For gasoline purchased on or before October 1, 1959, through June 30, 1961, a refund rate of four cents per gallon is allowed.

No refund of the tax is allowed for gasoline used on the highway; in processing, packaging or canning operations; or for personal or non-farming purposes.

File claims on Form 2240 (1961) with the U. S. District Director of Internal Revenue, Jacksonville, Florida. County agents, deputy collectors and the District Director of Internal Revenue have this form and instructions for preparing it.

## President Acree Names Mutual Committees

Florida Citrus Mutual President W. Max Acree today announced committees of the Mutual Board of Directors for the 1961-62 season.

Singled out for special comment by Acree are the Florida Citrus Commission Advisory Committee and Mutual's Grapefruit Stabilization Committee.

"Each of these will have extremely important roles to play during the coming year," he said. "Mutual's Commission Advisory Committee should be extremely useful with the (Citrus) Commission's decision to examine presentations from several advertising agencies this season."

"This committee contains several industry persons who have been past chairmen of the commission and should have very useful information to suggest," he added.

Heading up the Commission Advisory Committee is Harvey T. Hall, of Lakeland. Other members are Lawrence Clements, John Schrieffer, Eugene Borda, Dan Wright, Tom Swann, J. R. Graves, Tom Turnbull, Frank Roper, George W. Barr, Lacy G. Thomas, Jack Pine, Herschell Sorrells.

Acree said Mutual's Stabilization Committee will be active this month in an effort to determine what action can be taken for a marketing order for grapefruit.

J. J. Parrish, Jr., is chairman of the Stabilization Committee. Other members are Vernon L. Conner, Chester J. Karst, James C. Morton and Henry Prine.

The complete listing of the 1961-62 Mutual Committees follows:

Grower and Public Relations: James C. Morton, Chairman, Charles C. Partin, Albert Carlton, Fred H. Adkinson, Ford W. Moody, Tom O. Brown, Elton Clemmons, W. R. McMullen, Alexander Ryburn. Legislative: (To be appointed later.)

Budget and Audit: Henry A. Prine, Chairman, A. B. Michael, Fred H. Adkinson, B. F. Wheeler, James C. Morton, L. W. Tilden, John W. Parker. Chapter, By-Laws and Contracts: J. J. Parrish, Chairman, Robert J. Barben, Clayton Logan, W. R. McMullen, B. F. Wheeler, L.

W. Tilden, Herbert Massey. Grapefruit Cultural Practices and Quality: (To be named later.)

Export Committee: James C. Morton, Chairman, John T. Lesley, M. R. Buckalew, Earl Newton, Jack Berry, George Janner, Harry Riddling, Howard F. Baron, John Nelson, W. L. Simms, II. Patent Committee: Lacy G. Thomas, Chairman, Ralph Miller, Frank Chase, Clayton Logan, T. K. McClane, Jr., J. M. Kuder. Harvesting Placement Committee: (To be named later.)

Fresh Fruit Sales Committee:

Francis Heidrich, Chairman, Merle Appelgren, John Ariko, Robin Banks, Sam Banks, S. C. Battaglia, Jim Bowen, Cecil Cameron, Jim Coachman, \*Dorsey Cott, Bob Fox, Tom Greer, H. Y. Griffin, Sheldon Hearn, Jim Henderson, Jim Hogg, G. B. Hurlburt, \*Don Lins, L. J. McIrvin, \*John Nelson, Cope Newbern, Bert Roper, Dick Snyder, Andy Spada, Jr., Gene Turner, \*Ralph Wetherington, J. Dan Wright, Jr.

\*Voluntary Supply Adjustment Committee.



## KEEP INFORMED

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# Mims Citrus Growers Form Credit Agency

Members of the Mims (Florida) Citrus Growers Association have formed their own credit union, the third one of this type in the United States. There is also a credit union serving citrus growers in the British West Indies, according to the Credit Union National Association (CUNA) in Madison, Wisconsin, international headquarters of the credit union movement.

The newly formed Mimsega Credit Union in Mims, Florida, has a potential membership of 125, reports Treasurer Jerry Kyser. The other two credit unions are located in Bradenton, Florida, and Los Angeles, California.

Credit unions are nonprofit organizations formed by people with a common bond, such as belonging to the same association or working for the same employer. Entirely owned and operated by their members, credit unions provide a convenient place in which to save regularly and a source of low-cost credit.

By law, credit unions are prohibited from charging more than one per cent per month interest on the unpaid balance of a loan. Where possible, a portion of this is refunded to borrowers at the end of the year, making the cost of the loan even less.

Since they are chartered as nonprofit corporations, any earnings remaining after expenses are paid and necessary reserves set aside, are returned to the members in the form of dividends.

There are now more than 27,500 credit unions serving some 15 million members throughout the world, CNA reports.

## Entertainment To Feature Fruit And Vegetable Meet

The 1961 Convention of the Florida Fruit & Vegetable Association will include several additional events not previously scheduled, including a Golf Tournament and a Fishing Tournament, according to J. Abney Cox, Princeton, Convention Chair-

man.

"A committee has been appointed to supervise the first FFVA Golf Tournament which is scheduled for Tuesday, September 26."

"J. Dan Wright, Sanford, is committee chairman, with committee members J. H. Hatcher, Miami; Andrew Spada, Jr., Tampa; Alvin A. Voges, Orlando; and Harry E. Warren, Lakeland."

"The Fishing Tournament will be held on Thursday, September 28, with Maxwell W. Wells, Sr., Orlando, as chairman of the committee. Members of the committee are: J. R. Brooks, Homestead; Lewis Friend, Pahokee; Vernon Ramsey, Suffolk, Virginia; and F. W. Walker, Perrine," Cox said.

Other committees named by Cox included C. B. Streetman, Vero Beach, as Registration Committee Chairman and members Hubert Creel, Ft. Myers; Alvin B. Jones,

Deerfield Beach; L. A. Masters, Hastings; and W. H. Wynne, McIntosh.

Named to the Reception Committee, with John W. Evans, Oviedo, were: Robert Apelgren, Belle Glade; George P. Banks, Pompano Beach; Luther L. Chandler, Goulds; Sydney O. Chase, Jr., Sanford; and George Cooper, Princeton.

Also C. L. Council, Ruskin; John D'Albora, Jr., Cocoa; Jess Elliott, Pahokee; Pat Ferlise, Sarasota; and Luke Fraser, Pahokee.

Also Bruce Gray, East Palatka; Peter Harlee, Palmetto; Z. G. Holland, Hastings; J. C. Hutchison, Sanford; and K. F. Jorgensen, Zellwood.

Also Harold Kastner, Sanford; J. Emmett Kelly, Ft. Myers; Harold Kendall, Goulds; E. A. McCabe, Belle Glade; and W. Allen Markham, Okeechobee.

Also Rudolph Mattson, Fort Pierce; A. Dixon Pearce, Miami; George Pedersen, Perrine; Billy Rogers, South Bay; and John Snively, Winter Haven.

Also George H. Wedgworth, Belle Glade and Alan Wilson, Fort Pierce.

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# Operating Farm Tractors Efficiently

There were an estimated 4,790,000 tractors (wheel and crawler) on U.S. farms in 1960, according to the latest agricultural census. Of this total, Florida had an estimated 38,000 tractors (wheel and crawler), or 0.8 per cent of the U. S. total. In 1940, Florida had only 7,703 tractors, including garden types.

Based on an average purchase price of \$3,000, the total money presently invested in tractors by Florida growers will be in excess of \$115 million dollars. This being true and assuming an average annual use of 300 hours per tractor, Florida growers spend from 26.5 million to 38.5 million dollars, annually, on the operation of farm tractors.

## What Does It Cost To Operate Farm Tractors?

Research in Arkansas has shown that total cost of owning and operating a 1-2 plow tractor an average of 291 hours annually is \$1.48 per hour. For a 2-3 plow tractor operating 481 hours annually the cost is \$1.33 per hour. When a 3-4 plow tractor operates an average of 821 hours annually, the cost is then \$1.46 to \$1.63 per hour. 4-5 plow tractors operating 582 hours each year will range from \$2.22 to \$2.32 per hour. The above stated costs do not reflect the cost of the labor for the tractor driver, so we might well add \$1 per hour to each figure when we consider cost of operation. Simply stated, whether it be a 2-3 plow tractor or a 4-5 plow tractor, every time our farm tractor operates for one hour, we must ring up \$2.33 to \$3.32 in our "farm cost cash register".

The above costs are divided into (1) fixed (depreciation, interest, taxes, shelter, insurance and fuel storage) — which amount to 15% to 20% of the new cost of the tractor each year, and (2) operating costs (repairs, maintenance, lubricants, fuels) — which costs amount to approximately 3.5% of the new cost of the tractor, annually.

With these facts firmly in our mind, it is essential to the economy of our present day agricultural enterprise that we take steps to more efficiently utilize our farm tractors and farm equipment. The questions in the remaining portion of this article may be "yours", and the answers supplied are intended to serve as a guide to better economical operation and utilization of your tractor.

... BY ...

**DALTON S. HARRISON**  
ASSOCIATE AGRI. ENGINEER  
AGRICULTURAL EXT. SERVICE  
UNIVERSITY OF FLORIDA  
**M. O. WATKINS, DIRECTOR**

## Can My Tractor Operator Help Me In Lowering Tractor Costs

Yes. A recent study made by Agricultural Engineers at Ohio State University showed that tractor power costs can be reduced by operating the tractor at optimum engine speeds for better efficiency. Under the tests five gasoline and three Diesel tractors were tested, having a horsepower range of 24-50. A hypothetical tractor work life was selected based on a total life of 12,000 hours. Total fuel savings over the life of four tractors was calculated for "optimum" and "wide open throttle" settings. Fuel savings varied from 10 to 34 per cent.

In summation of the above tests, fuel savings by operating at optimum speeds rather than wide open throttle ranged from 2,700 to 4,170 gallons for the 12,000 hour life of the tractor. In terms of dollars saved this represents from \$650 to \$1,000 during the life of your tractor.

So, the next time you see your driver "humming the engine" at full throttle, ask him to shift up and reduce engine speed. The tractor governor should provide adequate speed regulation from rated engine speed down to approximately one-half of rated engine speed.

Drivers will also benefit by attending maintenance clinics and schools regularly.

## What Savings Could I Expect By Keeping My Carburetor Adjusted?

A twenty-five cent screwdriver can save a farmer as much as \$50 a year when it is used on carburetors that have gone out of adjustment.

Bob Durland, Assistant Agricultural Engineer at South Dakota State College, says you can save up to 10 per cent of your fuel consumption by keeping carburetors adjusted correctly. The adjustment is easy to make. Just take the operator's manual for each engine and make idle and load adjustments according to the directions.

## If I "Baby My Tractor", Could I Lose Power?

Yes. Research by Agricultural Engineer Benson J. Lamp shows that a

loafing engine wastes fuel and wears out faster. We should keep our tractor fully loaded so that the valves and plugs stay clean. An example of "babying a tractor" is to operate it at two-thirds throttle in a gear that doesn't work the engine hard. In so doing, the engine never has a chance to develop the horsepower it was designed to deliver. "Farm tractor engines work best, last longer, run cheaper and get the job done faster when we keep them fully loaded", says Engineer Lamp. Of course, we never want to overload either. This also wastes fuel, hikes repairs and causes needless repairs. However, we are more prone to under-load than overload.

An accurate way to tell when an engine is running at full load is to hook a "loadmeter" or vacuum gauge with a dampening valve into the intake manifold, just above the butterfly. This instrument costs approximately \$5 and it tells you when the engine is developing horsepower to match the load. When operating the tractor you merely shift and throttle to get about a 5-inch reading on the dial. If the tractor is overloaded, the readings will drop below 5. They'll go above 5 when the butterfly isn't open and the engine isn't fully loaded. Whenever the readings go above 5, shift into the next higher gear and throttle back.

## What Beneficial Effects Do I Get From Servicing My Tractor Regularly?

Agricultural Engineers Floyd N. Reece and George H. Larson of Kansas State University recently conducted "A Study of the Performance of Fifty Farm Tractors". Results showed that 10 per cent exhibited some air cleaner malfunction. Servicing the air cleaners on these tractors increased the average horsepower 7.6 per cent and decreased the fuel consumption 11.4 per cent.

Spark plugs were replaced in 90 per cent of the tractors tested, resulting in an increase of 5.6 per cent in horsepower and decreasing fuel consumption by 6.1 per cent.

Fourteen per cent of the tractors tested were misfiring and installation of the new plugs completely eliminated this malfunction. In the case of misfiring, installation of new plugs increased the power 21.5 per cent and decreased fuel consumption 14.2 per cent.

Forty-six per cent of the 50 tractors



tested were being operated with the air-fuel mixture too rich. Proper adjustment decreased fuel consumption by 9.5 per cent. Twenty-six per cent of the tractors tested were being operated with the air-fuel mixture excessively lean — this contributes to premature valve failure.

It was found that all the adjustments performed on the 38 tractors resulted in a decrease in specific fuel consumption of 8.2 per cent. The average specific fuel consumption before adjustments was 0.795 lb/Hp-Hr. and 0.730 lb/Hp-Hr. after all adjustments. This means a decrease of 14.4 per cent in fuel consumption after adjustments were made. Average maximum corrected horsepower was increased 11.1 per cent after adjustments.

#### Is It Possible That Borderline Spark Plugs May Be Stealing \$110 Annually From Each Tractor?

Yes. How long has it been since you have changed spark plugs? Many of you will answer "over a year ago", "just before last harvest", or "just before spring plowing". If your present plugs are older than 250 hours, consider what 14 Minnesota growers learned about their tractors — At Blue Earth, Minnesota, a tractor dealership tested 16 farm tractors. The results were reported in "Farm Journal" by a commercial spark plug company. These tractors were tested by dynamometer and flowmeter for true horsepower and fuel consumption. The units were tested first with the old plugs and then with new plugs. Results were that 14 of the 16 tractors tested were losing vital amounts of gasoline. The plugs were secretly and quietly misfiring, causing a loss in fuel economy of from 3c to 22c for every dollar spent for gasoline. If our annual fuel bill for one tractor is \$500, then our annual savings in fuel alone, by replacing 'borderline' spark plugs would be from \$60 to \$110 each year. In addition, we can do our work with the tractor in the 4th gear rather than 3rd gear.

#### Could You Give Me 3-Clues For Further Reducing Tractor Operating Costs?

Surely. (1) Generators and distributors need lubrication, too. — Many symptoms that seem to indicate ignition troubles can usually be traced to a sluggish distributor that didn't get lubricated in time. And, a generator that's been neglected will start "squealing" and then have to be replaced. Generators and distributors will go a long way on a little lubrication, but make a point of checking them not later than every 100 hours. (2) Is a dark engine oil a sign of a

hard worker? — Yes. However, the majority of people believe that the better an engine oil is, the more likely it is to come out as clean as it went in. The truth of the matter is just the opposite. A good detergent-dispersant oil holds onto dirt like an old friend. It keeps dust, soot and carbon in suspension and carries it out of the engine when you drain the oil. Oil that looks clean when you drain it from the crank-case is a sure sign that these contaminants are still inside the engine. The moral is this: Oil that darkens with use is really doing its job. (3) If tractor is overheating, check cylinder head joint, too. When your tractor continues to or is a chronic overheater, it may be your cylinder head joint. Normal procedure is to check slipping of fan belts, leaks in pressure cap, or radiator. When you've checked these, don't give up and head for the nearest repair shop. Take a close look at your cylinder head joint. An opening here would be too small for coolant to leak into engine, but plenty big enough to admit high-pressure exhaust gas into the coolant. Exhaust gas would push out a lot of coolant through the overflow pipe, and also contaminate whatever water remains.

This contaminated water might become acid enough to do some real damage. A crack in the head or block would have the same effect.

## Frozen Concentrate Setting New Records

Near-record purchases of frozen orange concentrate coupled with "heavy demand" weeks ahead should place the Florida citrus industry in a favorable position when the new pack gets underway on the traditional December 1 starting date, Robert W. Rutledge, Florida Citrus Mutual executive vice president, said today.

Rutledge bases his forecast on movement figures from the Florida Canners Association indicating a current sales record of staggering proportions. During the week ending July 29, for instance, movement from concentrators' warehouses amounted to 1,844,000 — the largest single assault on frozen orange concentrate since the latter part of January.

## FIBER GLASS SUPPLY TANKS



- STRONG AND DURABLE
- NO MAINTENANCE COSTS
- NO RUST CLOGGED NOZZLES
- BUILT TO LAST A LIFETIME
- REASONABLY PRICED
- BUILT IN COLOR
- IDEAL FOR LIQUID FERTILIZER
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ADVERTISEMENT — LYONS FERTILIZER COMPANY

# The LYONIZER

COMPILED BY THE LYONS FERTILIZER COMPANY

## Reports Of Our Field Men . . .

### NORTH CENTRAL FLORIDA

V. E. Bourland  
Winter Garden, Fla.  
Phone 107

We are having some rain now, but has been very dry and hot. Groves have been irrigated along all summer. More cultivation done this time than ever before. Cover crops just stopped growing and dried up. Groves suffered most on low land.

Most groves have bloomed some during June, July and August. Looks now some are going to stick, showing up in some groves very nice, others have none.

Growers have been very busy spraying and dusting, watering young trees. Some pruning being done. It is a good time to get your ditches cleaned out so the surface water can get from the low spots before the September gales get here.

Pastures as a whole are good, and cattle are in fine shape.

### SOUTH HILLSBOROUGH, MANATEE AND SARASOTA COUNTIES

R. C. Revels, Jr.  
P. O. Box 3332, Apollo Beach, Fla.

Ruskin — Most of the fall tomatoes are coming up now and with the exception of a few fields that received extra heavy rains, the plants look good. Plants in the seed beds are about ready to set, however most of the tomatoes will be planted in the field.

The tomato acreage will be somewhat smaller this fall than in the past. A lot of growers have planted other crops such as Pole Beans, Eggplants and Cukes to take up part of the normal tomato acreage.

Citrus trees have been getting enough rain the last few days and the new flush of growth has broken out making the groves look a lot better. There has been a lot of late bloom showing up also. All of the summer oil has been applied by now and the scale and spider mites seem to be under control, however the rust mite problem is still with us and most growers will have to either dust

with sulphur or spray with a good miticide next month if they keep their fruit clean. This has been one of the worse years in a decade for rust mite. There has already been a lot of fruit damage done by these mites. The dry weather kept most growers from applying the summer spray when it was time and allowed the rust mite to get ahead of them.

### HILLSBOROUGH, PASCO AND SUMTER COUNTIES

C. W. Dean  
Gibson, Fla.  
Phone Tampa 40-2592

Rains have been more numerous in the last few days. The response has been very fast in the different groves that have experienced these rains. Young and old trees have both flushed well with a good growth. Some parts of this section are still in bad need of rains. How this dry condition can effect the fruit is becoming evident with fruit size a prevailing factor. Growers are asking me about the possibility of a heavy population of fruit splitting when and if we do begin getting our long overdue rains. Personally, I think it is going to be a factor. With the continued dry weather thus causing the slow sizing of fruits, when the rains begin to fall and the fruit begins to take it up, most certainly it will cause an inside expansion of the fruit more than the peel can take.

### SOUTH POLK, HIGHLANDS, HARDEE AND DeSOTO COUNTIES

C. R. Wingfield  
Phone: Glendale 3-4537  
Avon Park, Fla.

Mid August found us again in need of some good overall rains. We are having showers but the area covered is normally small and appears to be in the same spots. However we are thankful for what has come our way and hope we will have more before this publication.

Citrus trees are looking good

in color and growth. The fruit is fairly good in size although due to lack of moisture some is not up to par. Rust mite damage in June and July also has retarded the size growth. The fruit crop appears to be about what has been reported in past month. Pineapple oranges still look like they will be below normal.

Some spraying and dusting is being done for Mite control. The cover crops are being chopped or disked in preparation to getting it worked into the soil. Young trees are being cared for at all times whether it be watering, hoeing or fertilizing. They also need spraying. Vegetable plantings are being made to Tomatoes and Egg Plants with Cucumber soon to follow.

### HIGHLANDS AND POLK COUNTIES

Jack Rubush and Gene Swearingen  
P. O. Box 1304  
Winter Haven, Fla.

Our summer rain fall has not been adequate in many parts of this area and the tree and fruit conditions are below normal growth in the dry areas. Our lake and water table is getting extremely low and we are hoping that we may get our summer rain a little late this year.

The cover crops are being chopped in the groves where it is necessary. Cover crop growth has been good this year except in dry areas.

Growers should continue to be on the look out for rust mite infestations. Rust mites have come back quite heavily following the summer scalicide in many blocks. Tree tops and inside fruit are most likely to be infected where a rust mite infestation has developed since the summer scalicide application. Sulphur dust is the most economical treatment but a Sulphur spray will give longer control.

Before long the young trees should be receiving their last fertilizer application until next spring. In the colder areas it would be wise to stop the application of fertilizer to young trees after the last of August. This would give ample time for the tender growth to harden before cold weather comes.

## ADVERTISEMENT — LYONS FERTILIZER COMPANY

*Uncle Bill Says:*

An old sayin' which says a lot of us dig up a heap of misery fer ourselves by tryin' to keep up with the Jones' er the Smith's er the Brown's er any other family . . . 'course these names are strictly fer the birds, 'cause they don't mean nothin' in reality and were jist picked out of the air at random . . . but in actual fact a lot of us folks and a lot of other folks has strained our credit and reduced our assets almost to the point of oblivion trying to have as big a car, as much land, as expensive a home and a lot of other things that someone may have which is bigger 'n better than our own.

Actually this trait is jist plum foolish, for no matter how smart a man may be he can't spend a lot more than he makes and come out ahead at the end of the year.

They is one place where Florida growers can afford to spend their money freely and that is in supplyin' their crops with adequate and proper fertilizers, insecticides and cultivation, fer money spent in this fashion is certain to pay off in the final analysis by producin' the sort of crops that the ultimate consumer wants . . . and is willin' to pay a premium price fer.

Every grower knows that in order to get the best results from his crops he's got to give those crops the very best plant food it's possible to buy . . . to protect those crops to the best of his abiliy from insect pests . . . to irrigate when necessary . . . to "fire" in case of need, and in many other ways to protect and preserve his valuable crops.

And, as we have said so often before, it is our considered opinion that Lyons Fertilizers Produce Maximum Crops of Finest Quality.

## SOLVING THE PROBLEMS OF MARKETING FRESH GRAPEFRUIT

(Continued from Page 9)

a shortage of the popular size and because of this situation a glut or over supply of some other size of grapefruit. Again we recommend more concerted thought on the sizes we have and must sell, and a more intelligent approach to pricing of these sizes.

If we find ourselves facing a crop of small size grapefruit as it appears we may this fall, let's use the highest price level we can successfully move the volume that's available and furthermore ask a premium on the sizes for which demand usually exceeds supply. We should then be in a position to change this pricing rapidly when demand or sizes change.

The progress made in the handling of other fruits, the new varieties, the length of season, packages and marketing procedures have progressed more in the last ten years than in all of this century. To review this rapidly, apples due to controlled atmosphere storage are now a year round item, peaches due to new varieties have become a five month competitor instead of two months some few years ago. Excellent transportation and improved methods make melons, soft fruits, and grapes a competitive fruit that knows no season.

Either we grow them over a long marketing program, or we import them. We must combat this through an intensified sales program backed with merchandising and advertising during what we now consider our normal season. However we must also work for an extended season on our present varieties or development of new varieties that will extend the season. We feel there is a place for successful marketing of several million boxes of summer grapefruit of good quality. This is a field that has not been worked to any great degree. It requires knowledge we presently lack in grove culture or in development of a late maturing fruit.

While we feel this is not a general case in the present method of sales of grapefruit it does occasionally become a deterring factor in fresh grapefruit marketing and worth mentioning.

There are a certain number of shippers satisfied in meeting the minimum legal standards of acceptance on fresh grapefruit. At one time we could brag "there's a customer for every type and price of fruit." Today's market has changed radically. Frankly, there is today a market for

only the best. We have done such an excellent job of selling the consumer on quality that there are few sales at any price for anything but the best.

It will behoove us as growers and shippers to sell in fresh only the best of our crop. We must further our efforts to establish Florida grapefruit as the symbol of the world's finest grapefruit. In the event we don't the housewife will correct this problem herself by not being willing to pay top prices on Florida grapefruit or turning to other areas for supplies or even to other fruits.

We have saved until last, in our opinion one of the most important factors in solving the problem of marketing fresh grapefruit. That is, elimination of unnecessary sales agencies. There are today some 200 salesmen trying to market our crops of Florida grapefruit. Perhaps this was all right in times of shortage and lack of competition from other growing areas. However, today this is just as old fashioned as the standard box which has passed out of existence. It is a luxury we cannot afford as we move into a more competitive period in grapefruit marketing.

We are now marketing our grapefruit through less individual companies than in the past. We have seen the joining together of individual retailers into cooperative or centralized buying groups. We have seen a tremendous growth of chain super markets, also many mergers among the chains themselves. So we have about the same number of sellers selling to a greatly reduced number of buyers. The largest grapefruit sales organization in the state sells approximately 25 percent of the fresh grapefruit.

The next largest single sales factor would only sell perhaps 6 percent of the fresh movement. We then have a large number of individual houses that individually sell 1 percent or less of the crop. This total group all with individual amounts and quotations is capable of creating an unrealistic and unnecessarily low grapefruit market. We believe fewer, but stronger marketing groups would go a long way toward a more stable market with a better opportunity to handle large orders and promotions which we feel would mean better returns to the grower and more efficient service to our buyers.

In conclusion we are making progress in curing our grapefruit marketing ills, but we must move faster and more forceful in the immediate future to successfully market larger crops at fair returns. We cannot wait until our industry is in serious trouble before we make some changes

in our grapefruit marketing procedures. This should be a year of deliberation and decision toward solving these problems.

## DETAILS OF FLORIDA'S BOND & LICENSE LAWS

(Continued from Page 6)

and under the new law dealers are also protected.

The amount of the bond required has been increased several times in the past 20 years. Some in the industry contend that it should be much higher than now required by law while others contend that if it is set too high, it will legislate many honest dealers out of business. At one time the law provided that if a dealer paid cash for fruit he did not have to have a license or a bond.

This did not remain in effect for long — it was changed in 1941 — because it just didn't work. Some who claimed that they paid cash paid by check and the checks "bounced", so it wasn't cash after all. So, let me close by saying the bond and license law is a good law — it is for your benefit — you should take advantage of it.

## RESEARCHERS TO BE HONORED AT MEETING

Outstanding researchers who have helped advance agriculture through scientific research will be recognized and rewarded at the 18th Annual Convention of the Florida Fruit & Vegetable Association at Miami Beach on September 27, according to J. Abney Cox, Princeton, general convention chairman.

"The importance of scientific research to the vegetable and sub-tropical fruit industry will be emphasized by the Association during the opening session.

"The award program, now in its sixth year, was established by the Florida Fruit & Vegetable Association to publicly acclaim these researchers, and through them, all fruit and vegetable researchers.

"Eligibility is intentionally broad, covering those who work in private industry, state or governmental organizations or departments, educational institutions or on their own projects.

"The 1961 awards, each including cash benefits to the winners, will be awarded on behalf of the Association by Florida Commissioner of Agriculture, Doyle Conner.

"Commissioner Conner last year presented the awards for the Association."



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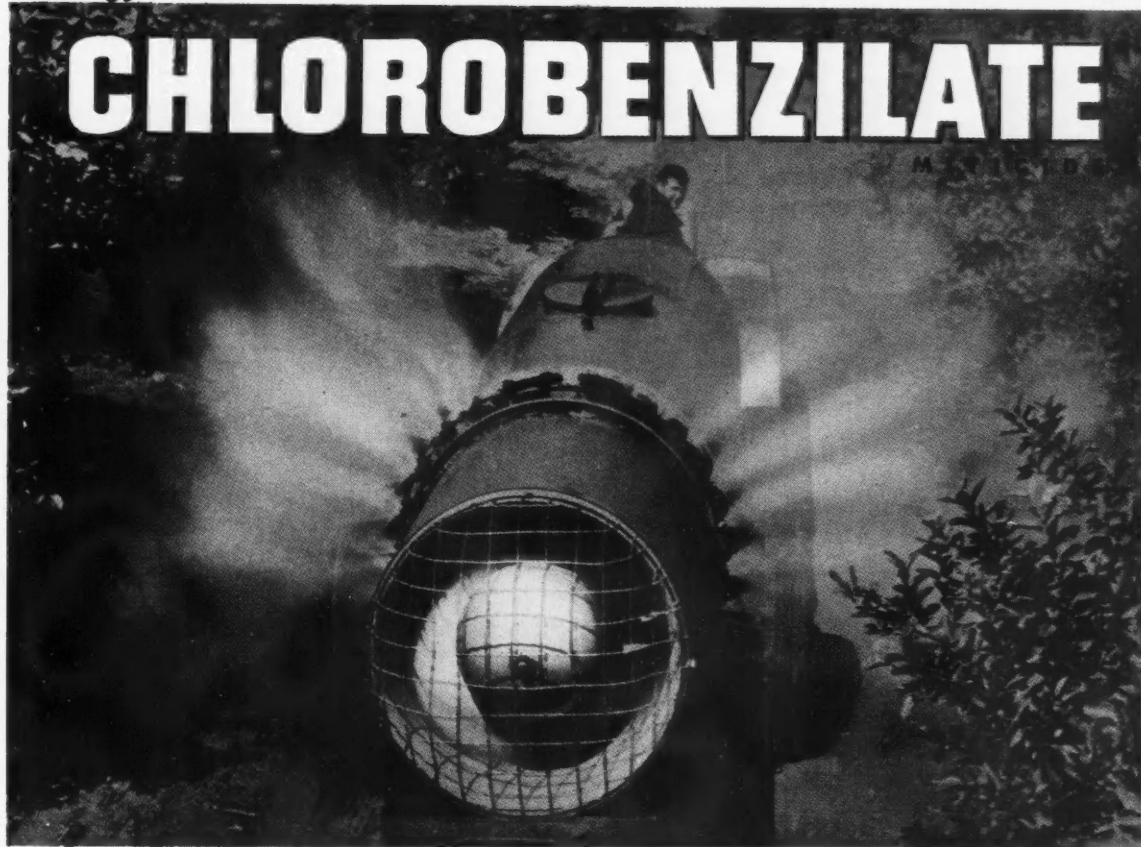
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**proved effective • economical • safe**

Positive mite control is a "must" to prevent russetting of fruit and excessive leaf drop—whether citrus is grown for the fresh market or for processing.

Put mite-killing power in your fall spray program with Chlorobenzilate—outstanding in effectiveness against rust mites and various types of red spiders attacking Florida citrus crops.

Chlorobenzilate is economical and easy to apply. And you will want to check these important safety features.

- safe to humans and animals
- non-irritating to skin
- does not affect insect parasites and predators, or bees under normal field conditions

Citrus pulp from Chlorobenzilate treated fruit can be fed to livestock when used according to label directions.

For complete and effective mite and insect control programs, Chlorobenzilate can be used in combination with phosphate insecticides, copper sprays, and other miticides recommended in Florida.

All in all Chlorobenzilate is your best bet for fall mite control on Florida citrus. Order today from your supplier—available either as liquid or wettable powder.



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FOR SALE: Specialized Grove Equipment for your Utility Model Tractor: Fenders; Fender Skirts; Operator's Shields; Drawbars; and Bumper, Grill, & Light Guards. Contact COUNTY EQUIPMENT COMPANY, INC., WAUCHULA, FLORIDA.



ARE YOU THINKING ABOUT NEW GROVES? Stay informed all year. Our monthly NEWSLETTERS are FREE! Place your Name and Address on our confidential Mailing List. Write: Newsletter, Dept. I, ADAMS CITRUS NURSERY, 122 W. Central Ave., Winter Haven.

### Another PER-MAN-ENT Product

#### PMT 7C Cone Chopper

- Low Silhouette
- Heavy Duty Bearing
- 6" Pipe Frame
- Full Seven Foot Cut
- Offset Adjustments
- Also Available in 8' & 10' Sizes

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For Lease: NEWLY INSTALLED COMPLETE CITRUS PACKING PLANT: 1 double, 2 single sizes 1-2000 pound new type field boxes, fork-lift trucks, automatic dumpers. Ample degreening sterilization rooms. 16 car spots, 10 truck docks. Only such commercial plant in Cameron/Willacy counties. Ample thin-skinned quality citrus available. Write for details Larry Lightner Farms, P. O. Box 671, Brownsville, Texas.

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20,000 Valencia on Rough Lemon  
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### REGISTERED AND NON-REGISTERED DANCY TANGERINES

ON LEMON and Murcotts on Cleo for immediate delivery. Limited quantities of standard and fancy varieties still available for Summer planting. Make your reservations for Fall '61 and Spring '62 deliveries NOW to assure availability of budded stock you require. Write

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ORDER TREES FOR NEXT YEAR. Pre-season ordering assures your needs! You know our SELECT BREEDING and VIGILANT CARE provide quality and competitive price. Call ADAMS CITRUS NURSERY, Winter Haven, CY 3-5672 or Lakeland Mobilephone JR608.

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Dark Cigar in BALES  
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We have the Registered Trees you need for young grove or for replanting.  
Prices quoted on request.

#### CRESCENT FARMS

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NURSERY STAKES — Galvanized Steel. New 3/16" x 30" (Standard). \$35.00 per 1,000, FOB Leesburg, Fla., while they last. Cauthen Grove Service and Farm Supply, Leesburg, Florida. Phone ST 7-3516.

### SUPERIOR REGISTERED

#### CITRUS TREES

Free of psorosis and xyloporosis. Grown on virgin certified nematode-free land.

All commercial varieties budded on rough lemon, sour orange, sweet orange and Cleopatra rootstocks.

Place orders now for Spring 1962 and June 1962 planting.

For quotations Call or Write

#### WARD'S NURSERY, INC.

Box 846 Avon Park  
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### GROVE PROBLEMS?

Consult Dr. Wolf to bring back and keep your grove in top condition. Phone or write for free details.

#### DR. WOLF'S LABS

2620 Taylor St.  
HOLLYWOOD, FLORIDA  
Phone: WA 2-2808

QUEEN ORANGE TREES, one year buds, two year stock, half inch, or better, excellent quality. Can be seen by contacting M. J. Johnson, phone 752-3452 or 752-4911, Plant City. Priced in quantities — will hold with deposit.

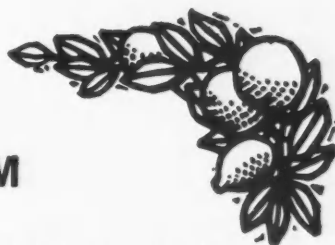
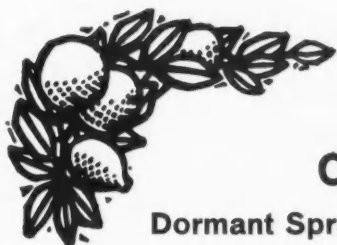
Grown on virgin certified nematode-free land from seed bed to trees. Budwood carefully selected from our own 160 acre grove.

**Rough Lemon Stock**  
15,000 Valencia  
9,000 Pineapple  
8,000 Queen  
\$1.35 each

**Sour Orange Stock**  
4,000 Pineapple  
3,000 Hamlin  
\$1.35 each

Place orders for fall '61, spring '62.

**WADE H. WARDLAW**  
Ph. 635-3652  
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## FLORIDA ORTHO® CITRUS SPRAY PROGRAM

### Dormant Spray (December 20 to February 10)

ORTHO Nutritional S-C-Z-Mn-B Spray No. 2  
ORTHO Sodium Molybdate  
ORTHO Spray Sticker

Dosage: 60 lbs./500 gals.  
Dosage: 5 ozs./500 gals.  
Dosage: 40 ozs./500 gals.

Controls: Citrus Rust Mite,  
Scab, Melanose, Copper,  
Zinc, Manganese, Boron  
Nutrition—Yellow Spot

**Note:** ORTHO Spray Sticker has proven especially beneficial in sticking nutritional sprays.

### Post Bloom Spray (from 2/3 petal fall until fruit reaches 1/2" in diameter)

ORTHOCIDE 50 Wettable  
ORTHO Parathion 8 Flow Concentrate  
ORTHO Zineb 75 Wettable  
ORTHO Trithion 4 Flowable or  
ORTHO Ethion 4 Flowable  
ORTHO Spray Sticker

Dosage: 10 lbs./500 gals.  
Dosage: 20 ozs./500 gals.  
Dosage: 3 lbs./500 gals.  
  
Dosage: 40 ozs./500 gals.  
Dosage: 40 ozs./500 gals.

Controls: Fruit Set, Foliage Growth,  
Melanose, Scab, Black Scale,  
Florida Red Scale, Purple Scale,  
Citrus Rust Mite, Fruit Russet,  
Citrus Red Mite, Texas Citrus  
Mite, Six Spotted Mite, Aphids,  
Mealybugs, Fruit Worms

**Note:** In recent years, minor pests, including Aphids, Mealybugs, Fruit Worms, Black Scale, have become increasingly important to control. Parathion in the post bloom spray prevents the build-up of these pests. If preferred, ORTHO Malathion may be substituted.

### Summer Spray (July 1 to July 31)

FLORIDA VOLCK Soluble Spray  
ORTHO Zineb 75 Wettable

Dosage: 5 gals./500 gals.  
Dosage: 5 lbs./500 gals.

Controls: Florida Red Scale, Purple  
Scale, Black Scale, Citrus Red  
Mite, Texas Citrus Mite, White  
Fly, Sooty Mold, Greasy Spot,  
Citrus Rust Mite, Fruit Russet

**Note:** Check with your local ORTHO Fieldman for other available phytonomic oil sprays. Florida Red Scale is best controlled between July 15 and July 31. If the interval between the Post Bloom Spray and the Summer Spray is extended to an aerial application of ORTHO Trithion 4 Flowable or ORTHO Trithion—Sulfur dust formulations may be needed for control of rust mites and spider mites prior to the Summer Spray.

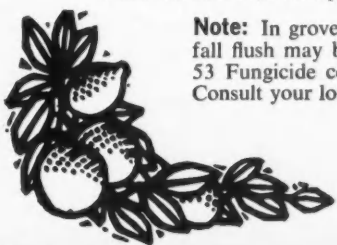
### Fall Spray (October 1 to November 15)

ORTHO Tedion 25 Wettable  
OR Chlorobenzilate 25 Wettable  
combined with ORTHO Spray Sticker

Dosage: 2 1/2 lbs./500 gals.  
Dosage: 2 1/2 lbs./500 gals.  
Dosage: 40 ozs./500 gals.

Controls: Citrus Red Mite,  
Texas Citrus Mite, Citrus Rust  
Mite, Fruit Russet

**Note:** In groves where greasy spot is a problem, protection of the late summer-early fall flush may be necessary. ORTHO PHALTAN 50 Wettable and ORTHO Copper 53 Fungicide combined with ORTHO Spray Sticker are recommended for this use. Consult your local ORTHO Fieldman for information on the proper rates and timing.



## Florida growers report top results with ORTHO program

"VOLCK Soluble Oil Spray is far superior to any oil I've ever used for scale control, and ORTHOCIDE 50 Wettable has given a definite increase in fruit set," says J. Reuben Newbold of Crescent City, Florida. Top-quality products specially formulated in Orlando and all the extra benefits of ORTHO Field Service are yours when you buy the ORTHO Citrus Spray Program. That's why most Florida growers have preferred ORTHO for over 36 years.



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